BAB VI

KESIMPULAN DAN SARAN

6.1 KESIMPULAN

Berdasarkan analisis dan hasil perhitungan optimasi bentuk dinding batu penahan tanah dengan metoda Algoritma Genetik dapat disimpulkan hal-hal pokok sebagai berikut:

1. Algoritma Genetik yang perumusannya tidak berdasarkan pada matematika terbukti dapat dipakai untuk menyelesaikan masalah optimasi bentuk dinding batu penahan tanah dengan variabel disain adalah lebar kaki dan tumit, lebar kemiringan dinding, lebar puncak, tebal kaki dan tumit.
2. Analisis stabilitas dinding penahan tanah dalam program ini meliputi stabilitas eksternal dan internal, dari uji validasi untuk kasus 1 dan 2 terlihat bahwa dimensi yang dihasilkan program memenuhi stabilitas dinding yang ditunjukkan kendala optimasi sama dengan nol.
3. Optimasi bentuk dinding batu penahan tanah dalam pembuatannya menggunakan metode Algoritma genetik yang berfungsi untuk melakukan proses pengulangan perhitungan jika dimensi yang didapat tidak memenuhi stabilitas dinding penahan tanah, dan untuk menghitung gaya-gaya dari stabilitas dinding tersebut menggunakan teori Coulomb yang memperhitungkan sudut gesek antara dinding penahan dengan tanah.

4. Program optimasi dinding batu penahan tanah setelah dilakukan perbandingan uji validasi, menghasilkan volume yang lebih ekonomis dibandingkan hasil yang dikerjakan tanpa optimasi. Untuk kasus 1 dan 2 volume yang dihasilkan lebih sedikit 40,85% dan 19,25% dibanding perhitungan tanpa optimasi

6.2 SARAN

1. Program ini dapat dikembangkan dengan jumlah lapisan tanah lebih dari lima lapis.
2. Untuk penampilan gambar hasil optimasi dapat dikembangkan dengan menampilkan gambar yang lebih skalatis.
3. Tidak tertutup kemungkinan ditemukan metode lain untuk proses optimasi yang akan memberikan hasil lebih baik dan lebih cepat proses operasinya dibandingkan hasil yang diperoleh memakai metode Algoritma Genetik.
4. Program ini memakai teori Coulomb dalam menghitung tekanan tanah, dan dapat dikembangkan lebih lanjut dengan memakai teori lain.
5. Dinding batu adalah salah satu alternatif dalam pembuatan dinding penahan tanah pada program ini, dan dapat dikembangkan dengan menggunakan bahan lain.

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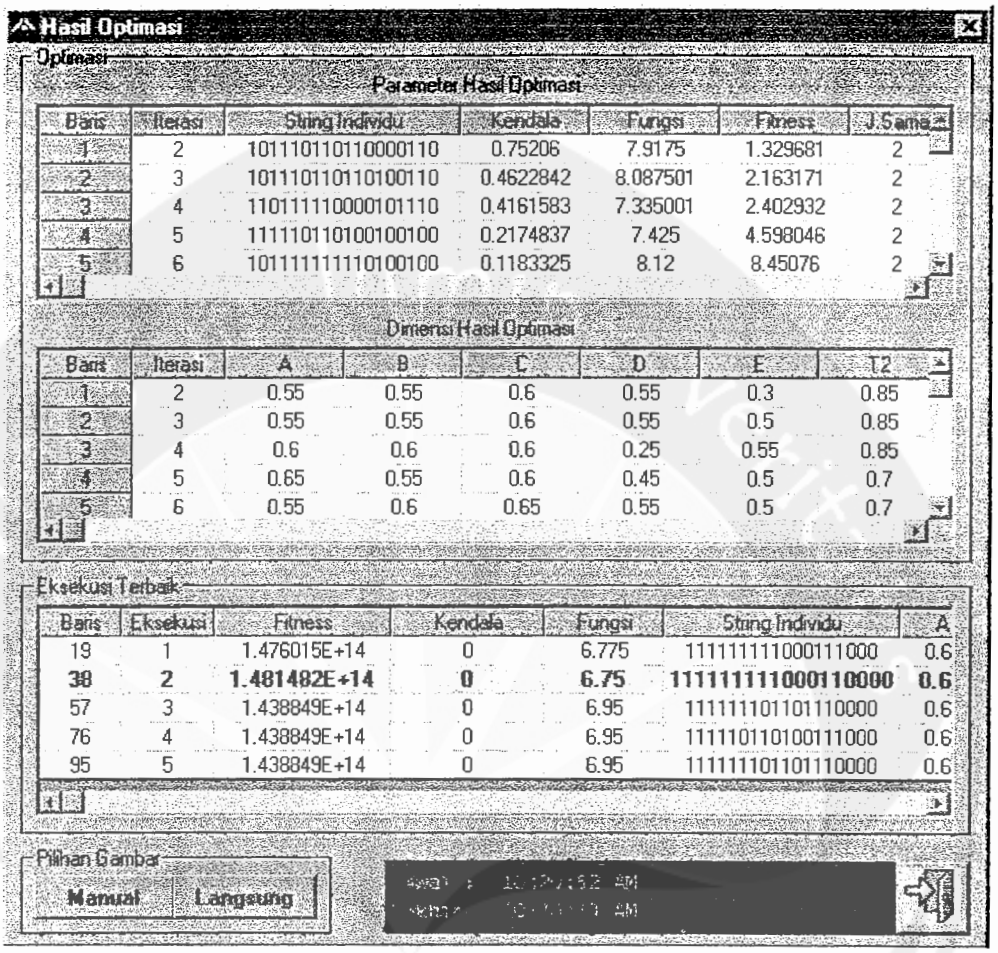
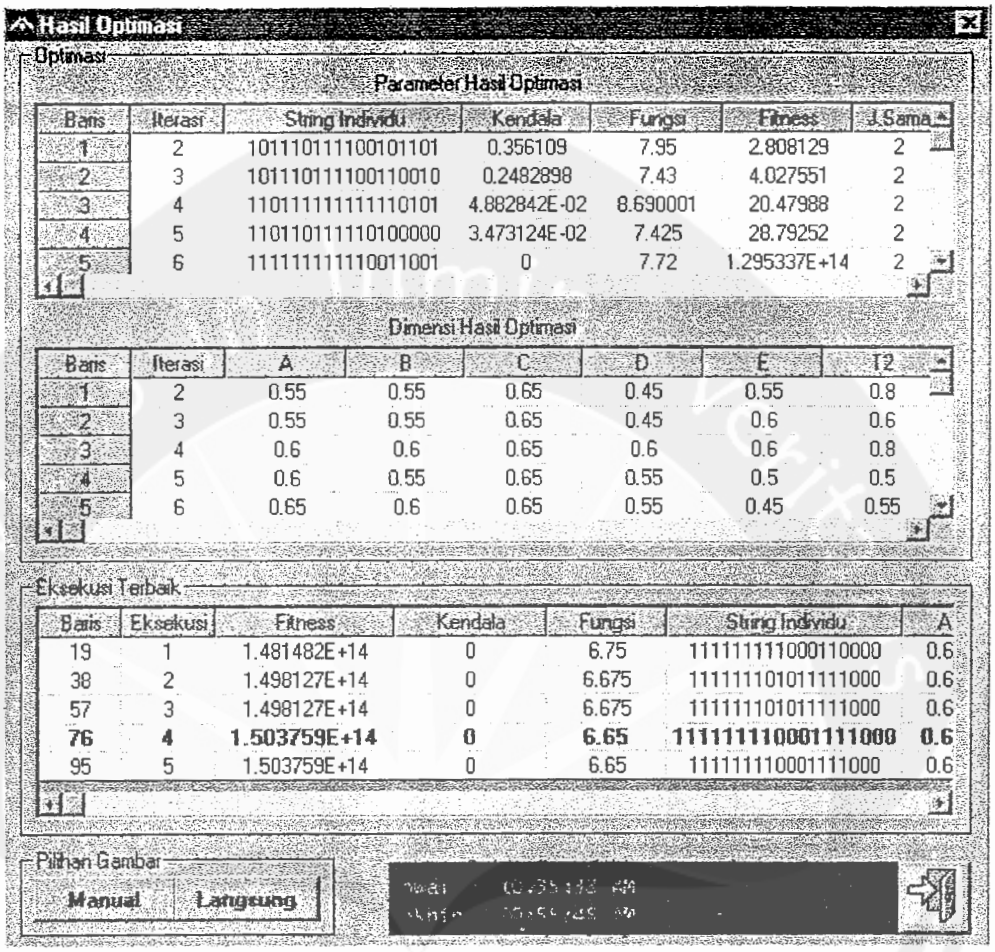
LAMPIRAN

Jumlah Individu = 100



Jumlah Individu = 200



Hasil Optimasi

Optimasi

Parameter Hasil Optimasi

Baris	Iterasi	String Individu	Kendala	Fungsi	Fitness	J.Sama
1	2	101110111100101101	0.356109	7.95	2.808129	2
2	3	101110111100110010	0.2482898	7.43	4.027551	2
3	4	110111111111110101	4.882842E-02	8.690001	20.47988	2
4	5	110110111110100000	3.473124E-02	7.425	28.79252	2
5	6	111111111110011001	0	7.72	1.295337E+14	2

Dimensi Hasil Optimasi

Baris	Iterasi	A	B	C	D	E	T2
1	2	0.55	0.55	0.65	0.45	0.55	0.8
2	3	0.55	0.55	0.65	0.45	0.6	0.6
3	4	0.6	0.6	0.65	0.6	0.6	0.8
4	5	0.6	0.55	0.65	0.55	0.5	0.5
5	6	0.65	0.6	0.65	0.55	0.45	0.55

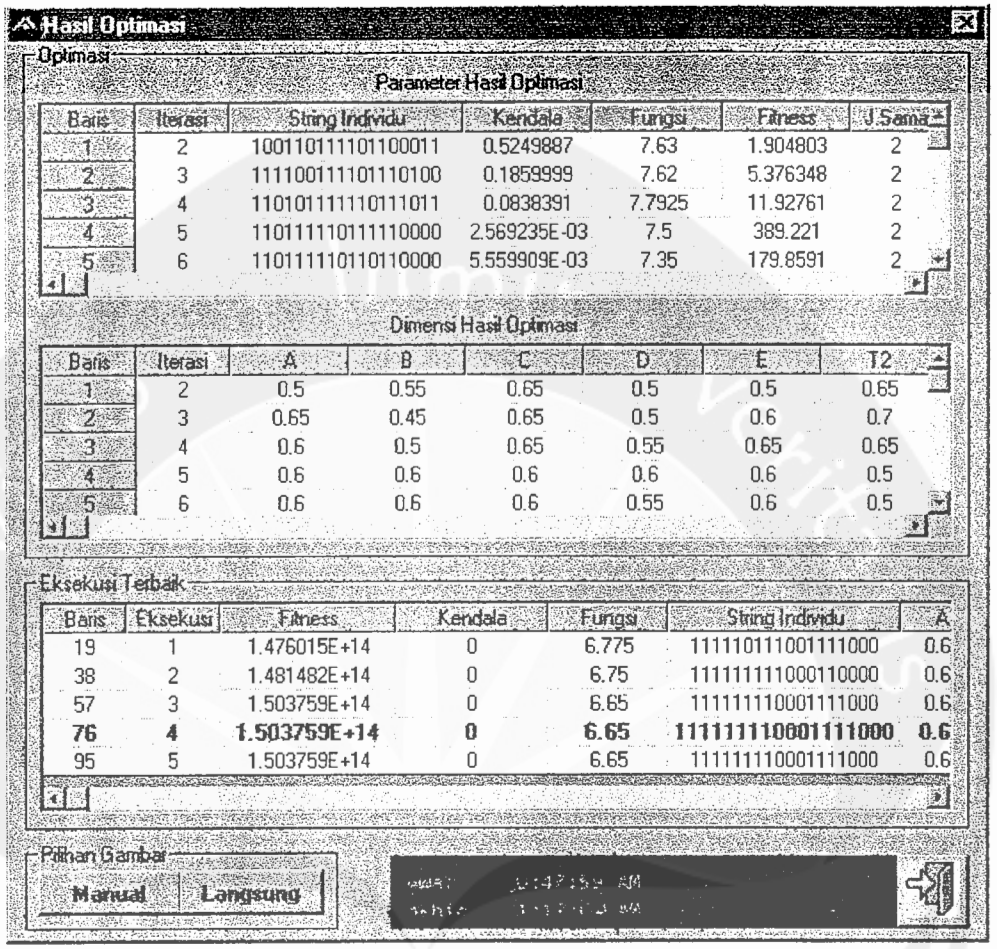
Eksekusi Terbaik

Baris	Eksekusi	Fitness	Kendala	Fungsi	String Individu	A
19	1	1.481482E+14	0	6.75	111111111000110000	0.6
38	2	1.498127E+14	0	6.675	111111101011111000	0.6
57	3	1.498127E+14	0	6.675	111111101011111000	0.6
76	**4**	**1.503759E+14**	**0**	**6.65**	**111111110001111000**	**0.6**
95	5	1.503759E+14	0	6.65	111111110001111000	0.6

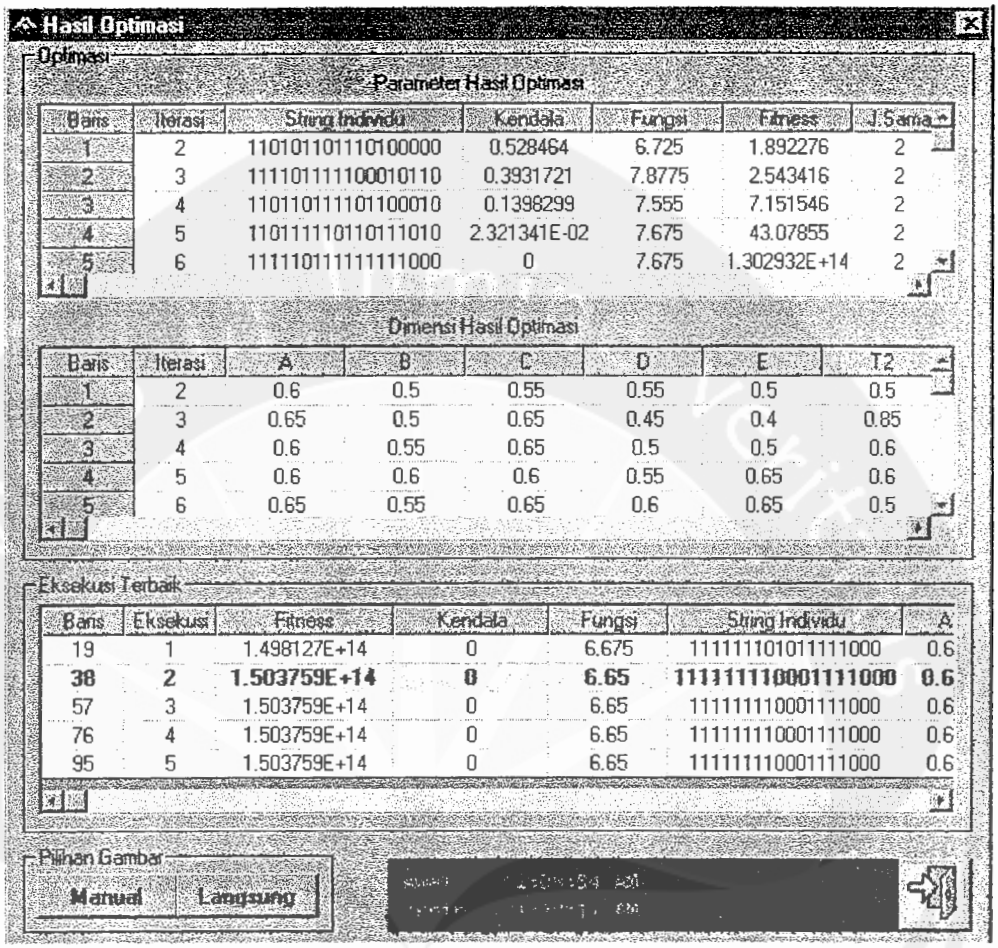
Pilihan Gambar

Manual | Langsung

Jumlah Individu = 300



Jumlah Individu = 400



Hasil Optimasi

Optimasi

Parameter Hasil Optimasi

Baris	Iterasi	String Individu	Kendala	Fungsi	Fitness	J.Sama
1	2	1101011011101000000	0.528464	6.725	1.892276	2
2	3	1111011111000010110	0.3931721	7.8775	2.543416	2
3	4	1101101111011000010	0.1398299	7.555	7.151546	2
4	5	1101111101101110010	2.321341E-02	7.675	43.07855	2
5	6	1111101111111111000	0	7.675	1.302932E+14	2

Dimensi Hasil Optimasi

Baris	Iterasi	A	B	C	D	E	T2
1	2	0.6	0.5	0.55	0.55	0.5	0.5
2	3	0.65	0.5	0.65	0.45	0.4	0.85
3	4	0.6	0.55	0.65	0.5	0.5	0.6
4	5	0.6	0.6	0.6	0.55	0.65	0.6
5	6	0.65	0.55	0.65	0.6	0.65	0.5

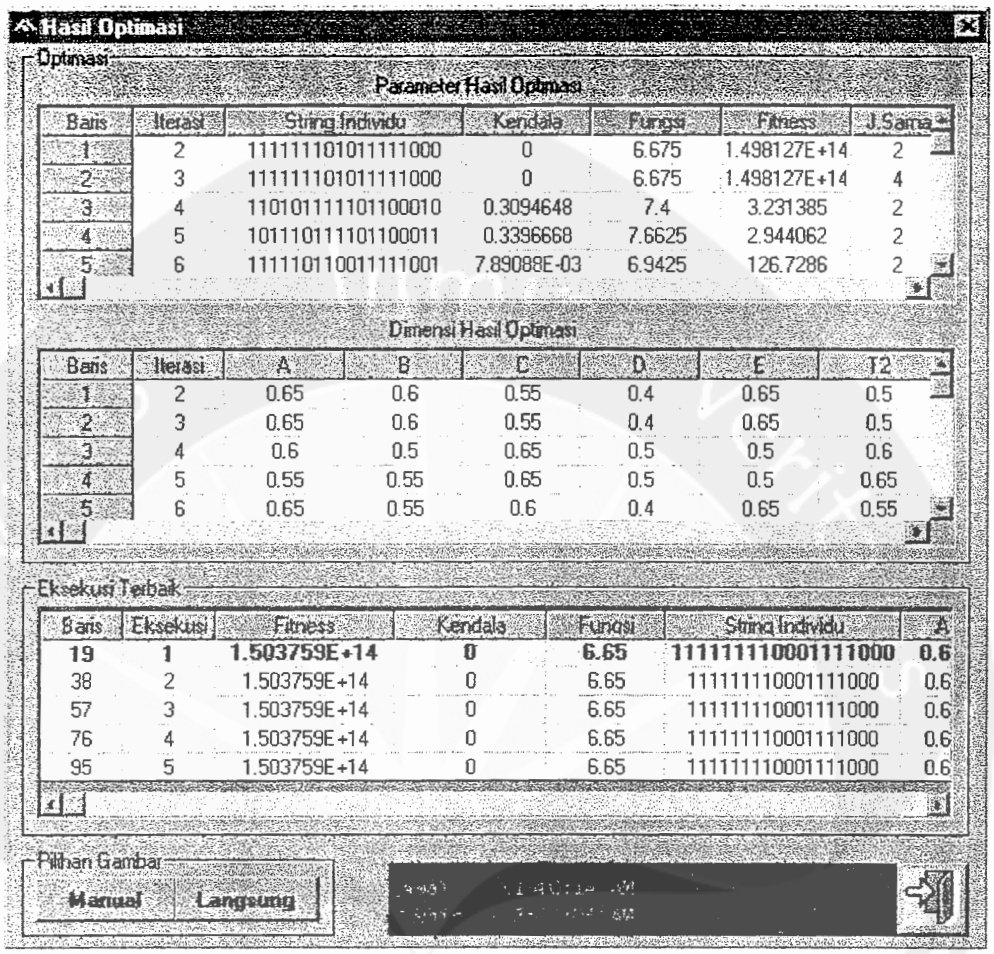
Eksekusi Terbaik

Baris	Eksekusi	Fitness	Kendala	Fungsi	String Individu	A
19	1	1.498127E+14	0	6.675	1111111010111111000	0.6
38	**2**	**1.503759E+14**	**0**	**6.65**	**1111111100011111000**	**0.6**
57	3	1.503759E+14	0	6.65	1111111100011111000	0.6
76	4	1.503759E+14	0	6.65	1111111100011111000	0.6
95	5	1.503759E+14	0	6.65	1111111100011111000	0.6

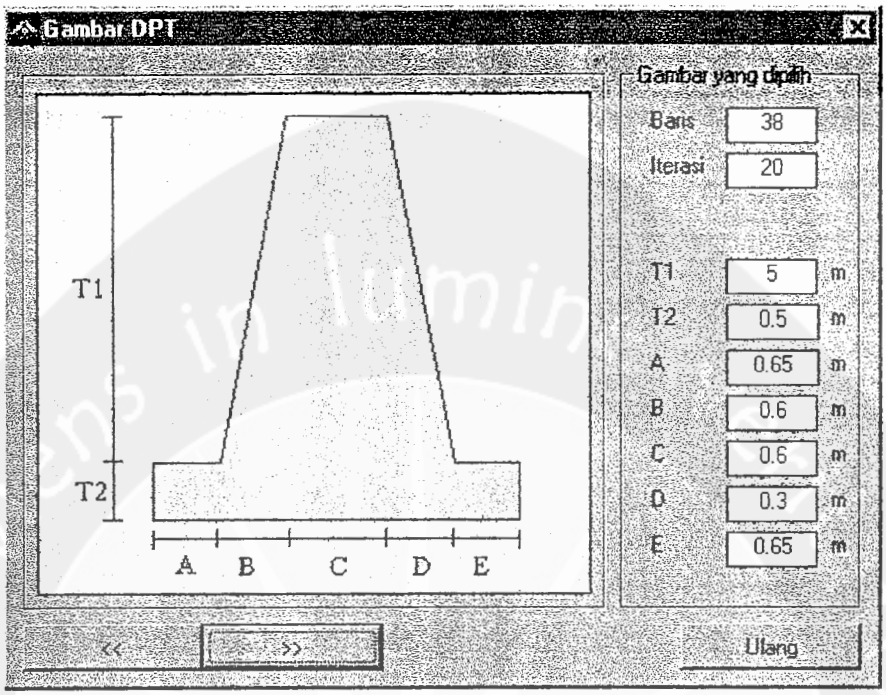
Pilihan Gambar

Manual | Langsung

Jumlah Individu = 450



Hasil *Output* gambar program



Tanah Lapis 1

```
Optimasi
Sub Optimasi()
Randomize Timer
xx = 1
jj = 1
JDD = 8
JVar = 6
Rr = Poptimasi.Rr.Text
PROSENMATI = 10
stringBest = " "
fitnessbest = 0#
JlhEks = Poptimasi.JlhEks
IterasiIjin = Poptimasi.IterasiIjin.Text
JIND = Poptimasi.JIND.Text
baris = 0
Hasil.ProgressBar1.Visible = True
Hasil.ProgressBar1.Min = 1
Hasil.ProgressBar1.Max = JlhEks
Hasil.ProgressBar2.Visible = True
Hasil.ProgressBar2.Min = 0
Hasil.ProgressBar2.Max = IterasiIjin
For ZEks = 1 To JlhEks
'String Individu'
   Btsbwh = 0
   Btsats = JDD - 1
      For i = 1 To JIND
         For k = 1 To JVar
nilai = Btsbwh + Int(Rnd * (Btsats - Btsbwh))
         NOVD(k) = nilai
         Bin = ""
         Xz = Val(NOVD(k))
            For j = 2 To 0 Step -1
             If Xz And (2 ^ j) Then
               Bin = Bin + "1"
            Else
               Bin = Bin + "0"
            End If
            Next j
         VD(k) = Bin
         Next k
         strIND(i) = ""
         For k = 1 To JVar
         strIND(i) = strIND(i) + VD(k)
          pjstrIND = Len(strIND(i))
         Next k
      Next i
'Proses Iterasi Optimasi'
   konver = "belum"
   iterasi = 1
   Do While (konver = "belum")
      baris = baris + 1
      Hasil.ProgressBar2.Value = iterasi
         '--------Ibu----------'
ibu1 = Left(strU(i), lokasi1(i))
      iterasi = iterasi + 1
      For i = 1 To JIND
      jodoh(i) = 0
      Next i

'Cari jodoh'
   For i = 1 To JIND
      If jodoh(i) = 0 Then IHASIL = i
         Do While (IHASIL = i)
            IBANTU = 1 + Int(Rnd * JIND)
            IADA = 0
            If IBANTU = i Then
            IADA = IADA + 1
      Else
         For j = 1 To JIND
            If IBANTU = jodoh(j) Then
            IADA = IADA + 1
            End If
         Next j
      End If
         If IADA = 0 Then IHASIL = IBANTU
         jodoh(i) = IHASIL
         jodoh(IHASIL) = i

         Loop
      strU(i) = strIND(jodoh(i))
   Next i

'Kawin Silang'
   For i = 1 To JIND
            IUJI = 1 + Int(Rnd * (pjstrIND - 1))
            lokasi1(i) = IUJI
            lokasi1(jodoh(i)) = IUJI
            ao = 0
            Do While (ao = 0)
         IPROD = 1 + Int(Rnd * (pjstrIND - 1))
             lokasi2(i) = IPROD
             lokasi2(jodoh(i)) = IPROD
          If lokasi1(i) <> lokasi2(i) Then ao = 1
            Loop
   Next i
For i = 1 To JIND
            If lokasi1(i) > lokasi2(i) Then
              temp1 = lokasi2(i)
              lokasi2(i) = lokasi1(i)
              lokasi1(i) = temp1
            End If
         '---------Bapak---------'
Bapak1 = Left(strIND(i), lokasi1(i))
Bapak2 = Mid(strIND(i), lokasi1(i) + 1,
lokasi2(i) - lokasi1(i))
Bapak3 = Right(strIND(i), pjstrIND -
lokasi2(i))
         For Li = 3 To 1 Step -1
          If Fe(Li) = "1" Then
```

```
ibu2 = Mid(strU(i), lokasi1(i) + 1, lokasi2(i) -
lokasi1(i))
ibu3 = Right(strU(i), pjstrIND - lokasi2(i))

'-------Anak-----------'
strIND(i) = Bapak1 + ibu2 + Bapak3
strIND(IHASIL) = ibu1 + Bapak2 + ibu3
Next i
'Generasi 1'
For iIndiv = 1 To JIND
iAwal = 1
strA = Mid(strIND(iIndiv), iAwal, 3)
strB = Mid(strIND(iIndiv), iAwal + 3, 3)
strC = Mid(strIND(iIndiv), iAwal + 6, 3)
strD = Mid(strIND(iIndiv), iAwal + 9, 3)
strE = Mid(strIND(iIndiv), iAwal + 12, 3)
strT2 = Mid(strIND(iIndiv), iAwal + 15, 3)
        iAwal = iAwal + 18

        'Dimensi A"
        decA = 0
        For Li = 1 To 3
         Na(Li) = Mid(strA, Li, 1)
        Next Li
        For Li = 1 To 3
         Fe(Li) = Na(4 - Li)
        Next Li
        For Li = 3 To 1 Step -1
         If Fe(Li) = "1" Then
         decA = decA + (2 ^ (Li - 1))
        End If
        Next Li

        'Dimensi B"
        decB = 0
        For Li = 1 To 3
         Na(Li) = Mid(strB, Li, 1)
        Next Li
        For Li = 1 To 3
         Fe(Li) = Na(4 - Li)
         Next Li
        For Li = 3 To 1 Step -1
         If Fe(Li) = "1" Then
         decB = decB + (2 ^ (Li - 1))
        End If
        Next Li
        'Dimensi C"
        decC = 0
        For Li = 1 To 3
         Na(Li) = Mid(strC, Li, 1)
        Next Li
        For Li = 1 To 3
         Fe(Li) = Na(4 - Li)
        Next Li
        A = AA(decA)
         decC = decC + (2 ^ (Li - 1))
        End If
        Next Li

        'Dimensi D"
        decD = 0
        For Li = 1 To 3
         Na(Li) = Mid(strD, Li, 1)
        Next Li
        For Li = 1 To 3
         Fe(Li) = Na(4 - Li)
        Next Li
        For Li = 3 To 1 Step -1
         If Fe(Li) = "1" Then
         decD = decD + (2 ^ (Li - 1))
        End If
        Next Li

        'Dimensi E"
        decE = 0
        For Li = 1 To 3
         Na(Li) = Mid(strE, Li, 1)
        Next Li
        For Li = 1 To 3
         Fe(Li) = Na(4 - Li)
        Next Li
        For Li = 3 To 1 Step -1
         If Fe(Li) = "1" Then
         decE = decE + (2 ^ (Li - 1))
        End If
        Next Li

        'DimensiT2'
        decT2 = 0
        For Li = 1 To 3
         Na(Li) = Mid(strT2, Li, 1)
        Next Li
        For Li = 1 To 3
         Fe(Li) = Na(4 - Li)
        Next Li
        For Li = 3 To 1 Step -1
         If Fe(Li) = "1" Then
         decT2 = decT2 + (2 ^ (Li - 1))
        End If
        Next Li
        DimensiA
        DimensiB
        DimensiC
        DimensiD
        DimensiE
        DimensiT2


Else
gg6(iIndiv) = g6(iIndiv)
```

```
B = BB(decB)
C = CC(decC)
D = DD(decD)
E = EE(decE)
T2 = TT2(decT2)
Gammatnh
Parameter
If Option1.Value = True Then Basah
If Option2.Value = True Then Kering
BrtBangunan
Stabilitas

g1(iIndiv) = Eks
g2(iIndiv) = Guling
g3(iIndiv) = Geser
g4(iIndiv) = Dukungmax
g5(iIndiv) = Dukungmin
g6(iIndiv) = Eksi
g7(iIndiv) = Desaki
g8(iIndiv) = Tariki
g9(iIndiv) = Geseri

If g1(iIndiv) < 0 Then
   gg1(iIndiv) = 0
Else
   gg1(iIndiv) = g1(iIndiv)
End If

If g2(iIndiv) >= 0 Then
   gg2(iIndiv) = 0
Else
   gg2(iIndiv) = g2(iIndiv)
End If

If g3(iIndiv) >= 0 Then
   gg3(iIndiv) = 0
Else
   gg3(iIndiv) = g3(iIndiv)
End If

If g4(iIndiv) < 0 Then
   gg4(iIndiv) = 0
Else
   gg4(iIndiv) = g4(iIndiv)
End If

If g5(iIndiv) > 0 Then
   gg5(iIndiv) = 0
Else
   gg5(iIndiv) = g5(iIndiv)
End If

If g6(iIndiv) < 0 Then
   gg6(iIndiv) = 0
'Urut Kecil Besar'
```

```
End If

If g7(iIndiv) <= 0 Then
   gg7(iIndiv) = 0
Else
   gg7(iIndiv) = g7(iIndiv)
End If

If g8(iIndiv) <= 0 Then
   gg8(iIndiv) = 0
Else
   gg8(iIndiv) = g8(iIndiv)
End If

If g9(iIndiv) <= 0 Then
   gg9(iIndiv) = 0
Else
gg9(iIndiv) = g9(iIndiv)
End If

      Kendalag(iIndiv) = Abs(gg1(iIndiv)) +
Abs(gg2(iIndiv)) + Abs(gg3(iIndiv)) +
Abs(gg4(iIndiv)) + Abs(gg5(iIndiv)) +
Abs(gg6(iIndiv)) + Abs(gg7(iIndiv)) +
Abs(gg8(iIndiv)) + Abs(gg9(iIndiv))

Fungsi(iIndiv) = (T1 * (C + (D / 2) + (B / 2)))
+ (T2 * (A + B + C + D + E))
      fitness(iIndiv) = 1E+15 /
(Fungsi(iIndiv) + (Rr * Kendalag(iIndiv)))

   kendalaindiv(iIndiv) = 0
   Fungsindiv(iIndiv) = 0
   fitnessindiv(iIndiv) = 0

kendalaindiv(iIndiv) = kendalaindiv(iIndiv) +
Kendalag(iIndiv)
Fungsindiv(iIndiv) = Fungsindiv(iIndiv) +
Fungsi(iIndiv)
fitnessindiv(iIndiv) = fitnessindiv(iIndiv) +
fitness(iIndiv)
Next iIndiv
```

```
Next Li
For Li = 3 To 1 Step -1
```

```
   For i = 1 To JIND
     For j = i + 1 To JIND
      If (fitnessindiv(i) < fitnessindiv(j)) Then
         temp = fitnessindiv(i)
         tempStr = strIND(i)
         fitnessindiv(i) = fitnessindiv(j)
         strIND(i) = strIND(j)
         fitnessindiv(j) = temp
         strIND(j) = tempStr
       End If
      Next j
   Next i

'Seleksi Alam'
JLHGANTI = Int(PROSENMATI * JIND /
100)
   If (JLHGANTI < 1) Then JLHGANTI = 1
    NOMATI = JIND + 1
    NOHIDUP = 0
For JLHGANTI = 1 To JLHGANTI
NOMATI = NOMATI - 1
NOHIDUP = NOHIDUP + 1
fitnessindiv(NOMATI) =
fitnessindiv(NOHIDUP)
strIND(NOMATI) = strIND(NOHIDUP)
Next JLHGANTI

'Hitung Indiv Best'
   jlhSama = 1
   For i = 2 To JIND
    If strIND(1) = strIND(i) Then jlhSama =
jlhSama + 1
   Next i

'Generasi Selanjutnya'
   For iIndiv = I To JIND
      iAwal = 1
      strA = Mid(strIND(iIndiv), iAwal, 3)
      strB = Mid(strIND(iIndiv), iAwal + 3, 3)
      strC = Mid(strIND(iIndiv), iAwal + 6, 3)
      strD = Mid(strIND(iIndiv), iAwal + 9, 3)
      strE = Mid(strIND(iIndiv), iAwal + 12,
3)
      strT2 = Mid(strIND(iIndiv), iAwal + 15,
3)
      iAwal = iAwal + 18

      'Dimensi A"
      decA = 0
      For Li = 1 To 3
       Na(Li) = Mid(strA, Li, 1)
      Next Li
      For Li = 1 To 3
       Fe(Li) = Na(4 - Li)
      Next Li
       If Fe(Li) = "1" Then
       decA = decA + (2 ^ (Li - 1))
      End If
      Next Li
      'Dimensi B"
      decB = 0
      For Li = 1 To 3
       Na(Li) = Mid(strB, Li, 1)
      Next Li
      For Li = 1 To 3
       Fe(Li) = Na(4 - Li)
      Next Li
      For Li = 3 To 1 Step -1
       If Fe(Li) = "1" Then
       decB = decB + (2 ^ (Li - 1))
      End If
      Next Li

      'Dimensi C"
      decC = 0
      For Li = 1 To 3
       Na(Li) = Mid(strC, Li, 1)
      Next Li
      For Li = 1 To 3
       Fe(Li) = Na(4 - Li)
      Next Li
      For Li = 3 To 1 Step -1
       If Fe(Li) = "1" Then
       decC = decC + (2 ^ (Li - 1))
      End If
      Next Li

      'Dimensi D"
      decD = 0
      For Li = 1 To 3
       Na(Li) = Mid(strD, Li, 1)
      Next Li
      For Li = 1 To 3
       Fe(Li) = Na(4 - Li)
      Next Li
      For Li = 3 To 1 Step -1
       If Fe(Li) = "1" Then
       decD = decD + (2 ^ (Li - 1))
      End If
      Next Li

      'Dimensi E"
      decE = 0
      For Li = 1 To 3
       Na(Li) = Mid(strE, Li, 1)
      Next Li
      For Li = 1 To 3
       Fe(Li) = Na(4 - Li)
      Else
         gg2(iIndiv) = g2(iIndiv)
```

```
For Li = 3 To 1 Step -1
  If Fe(Li) = "1" Then
  decE = decE + (2 ^ (Li - 1))
End If
Next Li
'DimensiT2'
decT2 = 0
For Li = 1 To 3
  Na(Li) = Mid(strT2, Li, 1)
Next Li
For Li = 1 To 3
  Fe(Li) = Na(4 - Li)
Next Li
For Li = 3 To 1 Step -1
  If Fe(Li) = "1" Then
  decT2 = decT2 + (2 ^ (Li - 1))
End If
Next Li

Call DimensiA
Call DimensiB
Call DimensiC
Call DimensiD
Call DimensiE
Call DimensiT2
A = AA(decA)
B = BB(decB)
C = CC(decC)
D = DD(decD)
E = EE(decE)
T2 = TT2(decT2)
Parameter
If Option1.Value = True Then Basah
If Option2.Value = True Then Kering
BrtBangunan
Stabilitas
g1(iIndiv) = Eks
g2(iIndiv) = Guling
g3(iIndiv) = Geser
g4(iIndiv) = Dukungmax
g5(iIndiv) = Dukungmin
g6(iIndiv) = Eksi
g7(iIndiv) = Desaki
g8(iIndiv) = Tariki
g9(iIndiv) = Geseri

If g1(iIndiv) < 0 Then
   gg1(iIndiv) = 0
Else
   gg1(iIndiv) = g1(iIndiv)
End If

If g2(iIndiv) >= 0 Then
   gg2(iIndiv) = 0
End If

If g3(iIndiv) >= 0 Then
   gg3(iIndiv) = 0
Else
   gg3(iIndiv) = g3(iIndiv)
End If

If g4(iIndiv) < 0 Then
   gg4(iIndiv) = 0
Else
   gg4(iIndiv) = g4(iIndiv)
End If

If g5(iIndiv) > 0 Then
   gg5(iIndiv) = 0
Else
   gg5(iIndiv) = g5(iIndiv)
End If

If g6(iIndiv) < 0 Then
   gg6(iIndiv) = 0
Else
   gg6(iIndiv) = g6(iIndiv)
End If

If g7(iIndiv) <= 0 Then
   gg7(iIndiv) = 0
Else
   gg7(iIndiv) = g7(iIndiv)
End If

If g8(iIndiv) <= 0 Then
   gg8(iIndiv) = 0
Else
   gg8(iIndiv) = g8(iIndiv)
End If

If g9(iIndiv) <= 0 Then
   gg9(iIndiv) = 0
Else
gg9(iIndiv) = g9(iIndiv)
End If

    Kendalag(iIndiv) = Abs(gg1(iIndiv)) +
Abs(gg2(iIndiv)) + Abs(gg3(iIndiv)) +
Abs(gg4(iIndiv)) + Abs(gg5(iIndiv)) +
Abs(gg6(iIndiv)) + Abs(gg7(iIndiv)) +
Abs(gg8(iIndiv)) + Abs(gg9(iIndiv))
    Fungsi(iIndiv) = (T1 * (C + (D / 2) + (B /
2))) + (T2 * (A + B + C + D + E))
    fitness(iIndiv) = 1E+15 / (Fungsi(iIndiv)
+ (Rr * Kendalag(iIndiv)))
  .CellAlignment = 4
  .Text = BB(decB)
```

```
        kendalaindiv(iIndiv) = 0
        Fungsindiv(iIndiv) = 0
        fitnessindiv(iIndiv) = 0

        kendalaindiv(iIndiv) =
kendalaindiv(iIndiv) + Kendalag(iIndiv)
        Fungsindiv(iIndiv) = Fungsindiv(iIndiv)
+ Fungsi(iIndiv)
        fitnessindiv(iIndiv) = fitnessindiv(iIndiv)
+ fitness(iIndiv)

        Hasil.Label5.Caption = iterasi
    'Tampilan Flexgrid'
    With Hasil.MSFlexGrid1
    .Row = baris
    .Col = 0
    .CellAlignment = 4
    .Text = baris
    .Col = 1
    .CellAlignment = 4
    .Text = iterasi
    .Col = 2
    .CellAlignment = 4
    .Text = strIND(1)
    .Col = 3
    .CellAlignment = 4
    .Text = Kendalag(iIndiv)
    .Col = 4
    .CellAlignment = 4
    .Text = Fungsi(iIndiv)
    .Col = 5
    .CellAlignment = 4
    .Text = fitness(iIndiv)
    .Col = 6
    .CellAlignment = 4
    .Text = jlhSama
    .Col = 7
    .CellAlignment = 4
    .Text = ZEks
    .Rows = Hasil.MSFlexGrid1.Rows + 1
    End With

    With Hasil.MSFlexGrid2
    .Row = baris
    .Col = 0
    .CellAlignment = 4
    .Text = baris
    .Col = 1
    .CellAlignment = 4
    .Text = iterasi
    .Col = 2
    .CellAlignment = 4
    .Text = AA(decA)
    .Col = 3
    .Col = 6
    .Col = 4
    .CellAlignment = 4
    .Text = CC(decC)
    .Col = 5
    .CellAlignment = 4
    .Text = DD(decD)
    .Col = 6
    .CellAlignment = 4
    .Text = EE(decE)
    .Col = 7
    .CellAlignment = 4
    .Text = TT2(decT2)
    .Rows = Hasil.MSFlexGrid2.Rows + 1
    End With

    Next iIndiv
    With Hasil.MSFlexGrid1
    For k = 2 To JIND
    .Rows = Hasil.MSFlexGrid1.Rows - 1
    Next k
    End With
    With Hasil.MSFlexGrid2
    For k = 2 To JIND
    .Rows = Hasil.MSFlexGrid2.Rows - 1
    Next k
    End With

    'Check Konvergen'
    If jlhSama >= 0.9 * JIND Then konver =
"sudah"
    If iterasi = IterasiIjin Then konver =
"sudah"
    Loop
    With Hasil.MSFlexGrid3
    .Row = ZEks
    .Col = 0
    .CellAlignment = 4
    .Text = ZEks
    .Col = 1
    .CellAlignment = 4
    .Text = fitnessindiv(1)
    .Col = 2
    .CellAlignment = 4
    .Text = kendalaindiv(1)
    .Col = 3
    .CellAlignment = 4
    .Text = Fungsindiv(1)
    .Col = 4
    .CellAlignment = 4
    .Text = strIND(1)
    .Col = 5
    .CellAlignment = 4
    .Text = AA(decA)
.Col = 8
.CellFontBold = True
```

```
    H1 = Text3.Text
    Delta1 = Text4.Text
    If D = 0 Then
    alfa = 0
    Else
    alfa = (Atn(T1 / D)) * (180 * (7 / 22))
    End If
    lamda = (180 - (90 + alfa))
    L = (A + B + C + D + E)
    Lt = ((T1 ^ 2) + (D ^ 2)) ^ (0.5)
    Ht = T1 + T2
    L1 = (H1 / (Cos(lamda / (180 * 7 / 22))))
    Ka1 = ((Sin((alfa + Phi1) / (180 * 7 / 22))) ^
2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta1) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi1 + Delta1) / (180 * 7 / 22))) *
(Sin(Phi1 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta1) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
    Kp = ((Sin((alfa - Phi1) / (180 * 7 / 22))) ^
2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa + Delta1) / (180 * 7 / 22)))) * (1 -
((((Sin((Phi1 + Delta1) / (180 * 7 / 22))) *
(Sin(Phi1 / (180 * 7 / 22)))) / ((Sin((alfa +
Delta1) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)

End Sub
Sub Basah()
'On Error Resume Next
    da = (((H1 - Hw1) * D) / T1)
    Hw1 = H1 - (Ht - Hwt)
    Lw1 = (Hw1 / (Cos(lamda * (180 * 7 /
22))))
    'Tekanan Pasif'
    Epp = 0.5 * (T2) ^ 2 * Ga1 * Kp
    Cp = T2 * 2 * Ch1 * ((Kp) ^ 0.5)
    Ppair = 0.5 * (T2) ^ 2 * Gw
    Mep = Ep * (T2 / 3)
    Mcp = Cp * (T2 / 2)
    Mpair = Ppair * (T2 / 3)
    Mpp = Mep + Mcp + Mair
    Ep = Epp + Cp + Ppair

    If Hwt = Ht Then
    'Gaya Eksternal'
    'Beban Merata Q'
    Do While QQ <> 0
    Eq1 = (Q * L1) * Ka1
    Eq2 = (Q + L1 * Ga1) * T2 * Ka1
    Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
    Mc1V = C1Vi * (B + C + (D / 2))
    Mc2H = C2H * (T2 / 2)
    Mc1V = C1V * (A + B + C + (D / 2))
    Mc2V = C2V * (L)
    JEaV = Ea1V + Ea2V + Ea3V
    JEaH = Ea1H + Ea2H + Ea3H
    JMaH = Ma1H + Ma2H + Ma3H
    JMaV = Ma1V + Ma2V + Ma3V
    JMCH = Mc1H + Mc2H
    JMCV = Mc1V + Mc2V

    EaV = (JEqV + JEaV) - JCV + PairV
    Ea = (JEqH + JEaH) - JCH + PairH
    MaV = (JMqV + JMaV) - JMCV + MairV
    Ma = (JMqH + JMaH) - JMCH + MairH

    'Gaya Internal'
    'Beban Merata Q'
    QQ = Q
    Do While QQ <> 0
    Eq1i = (Q * L1) * Ka1
    Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
    Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
    Mq1Hi = Eq1Hi * (H1 / 2)
    Mq1Vi = Eq1Vi * (B + C + (D / 2))
    QQ = 0
    Loop
    'Beban Tanah'
    Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
    Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
    Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
    Ma1Hi = Ea1Hi * (H1 / 3)
    Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * D))

    'Beban Air'
    Pairi = 0.5 * (L1) ^ 2 * Gw
    PairHi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Pairi
    PairVi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Pairi
    MairHi = PairHi * (Hwt / 3)
    MairVi = PairVi * (B + C + ((1 / 3) * D))

    'Cohesi'
    C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
    C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    Mc1Hi = C1Hi * (H1 / 2)
    'Beban Tanah'
    Ea1 = 0.5 * (L1 - Lw1) ^ 2 * Gb1 * Ka1
```

```
JEqHi = Eq1Hi
JEqVi = Eq1Vi
JMqHi = Mq1Hi
JMqVi = Mq1Vi
JEaVi = Ea1Vi
JEaHi = Ea1Hi
JMaHi = Ma1Hi
JMaVi = Ma1Vi
JCHi = C1Hi
JCVi = C1Vi
JMCHi = Mc1Hi
JMCVi = Mc1Vi

EaVi = (JEqVi + JEaVi) - JCVi + PairVi
Eai = (JEqHi + JEaHi) - JCHi + PairHi
MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
Mai = (JMqHi + JMaHi) - JMCHi + MairHi

ElseIf Hwt > T2 And Hwt < Ht Then
'Gaya Eksternal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1 = Q * (L1 - Lw1) * Ka1
Eq2 = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
Eq3 = (Q + (L1 - Lw1) * Gb1 + Lw1 *
Ga1) * T2 * Ka1
Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
Eq3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq3
Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
Eq3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq3
QQ = 0
Loop
JEqH = Eq1H + Eq2H + Eq3H
JEqV = Eq1V + Eq2V + Eq3V
Mq1H = Eq1H * ((H1 - Hw1) / 2) + T2
Mq2H = Eq2H * (Hw1 / 2) + T2
Mq3H = Eq3H * (T2 / 2)
Mq1V = Eq1V * (A + B + C + (da / 2))
Mq2V = Eq2V * (A + B + C + (D / 2))
Mq3V = Eq3V * (L)
JMqH = Mq1H + Mq2H + Mq3H
JMqV = Mq1V + Mq2V + Mq3V

Ea2 = ((L1 - Lw1) * Gb1 * Ka1) * Lw1
Ea3 = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
Ea4 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka1 * T2
Ea5 = 0.5 * (T2) ^ 2 * Ga1 * Ka1
Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
Ea4H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea4
Ea5H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea5
Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
Ea4V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea4
Ea5V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea5
JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H
Ma1H = Ea1H * ((H1 - Hw1) / 3) + T2
Ma2H = Ea2H * (Hw1 / 2) + T2
Ma3H = Ea3H * (Hw1 / 3) + T2
Ma4H = Ea4H * (T2 / 3)
Ma5H = Ea5H * (T2 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) *
da))
Ma2V = Ea2V * (A + B + C + (D / 2))
Ma3V = Ea3V * (A + B + C + ((1 / 3) * D))
Ma4V = Ea4V * (L)
Ma5V = Ea5V * (L)
JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V

'Beban Air'
Pair = 0.5 * (Lw1 + T2) ^ 2 * Gw
PairH = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Pair
PairV = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Pair
MairH = PairH * (Hwt / 3)
MairV = PairV * (L)
Ea3Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3i
```

```
'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = T2 * 2 * Ch1 * ((Ka1) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
C2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C2
C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
C2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C2

Mc1H = C1H * (H1 / 2) + T2
Mc2H = C2H * (T2 / 2)
Mc1V = C1V * (A + B + C + (D / 2))
Mc2V = C2V * (L)
JMCH = Mc1H + Mc2H
JMCV = Mc1V + Mc2V

EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH

'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
Mq1Hi = Eq1Hi * (((H1 - Hw1) / 2) +
Hw1)
Mq2Hi = Eq2Hi * (Hw1 / 2)
Mq1Vi = Eq1Vi * (B + C + (da / 2))
Mq2Vi = Eq2Vi * (B + C + (D / 2))
QQ = 0
Loop
'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
Ea2i = (((L1 - Lw1) * Gb1) * Ka1) * Lw1
Ea3i = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
Ea2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
QQ = Q
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
Ea2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
Ea3Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3i
Ma1Hi = Ea1Hi * (((H1 - Hw1) / 3) +
Hw1)
Ma2Hi = Ea2Hi * (Hw1 / 2)
Ma3Hi = Ea3Hi * (Hw1 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * da))
Ma2Vi = Ea2Vi * (B + C + (D / 2))
Ma3Vi = Ea3Vi * (B + C + ((1 / 3) * D))

'Beban Air'
Pairi = 0.5 * (Lw1) ^ 2 * Gw
PairHi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Pairi
PairVi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Pairi
MairHi = PairHi * (Hwt / 3)
MairVi = PairVi * (B + C + ((1 / 3) * D))

'Cohesi'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
Mc1Hi = C1H * (H1 / 2)
Mc1Vi = C1V * (B + C + (D / 2))
JEqHi = Eq1Hi + Eq2Hi
JEqVi = Eq1Vi + Eq2Vi
JMqHi = Mq1Hi + Mq2Hi
JMqVi = Mq1Vi + Mq2Vi
JEaVi = Ea1Vi + Ea2Vi + Ea3Vi
JEaHi = Ea1Hi + Ea2Hi + Ea3Hi
JMaHi = Ma1Hi + Ma2Hi + Ma3Hi
JMaVi = Ma1Vi + Ma2Vi + Ma3Vi
JCHi = C1Hi
JCVi = C1Vi
JMCHi = Mc1Hi
JMCVi = Mc1Vi

EaVi = (JEqVi + JEaVi) - JCVi + PairVi
Eai = (JEqHi + JEaHi) - JCHi + PairHi
MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
Mai = (JMqHi + JMaHi) - JMCHi +
MairHi


ElseIf Hwt = T2 And Hwt < Ht Then
'Gaya Eksternal'
'Beban Merata Q'
```

```
Do While QQ <> 0
Eq1 = (Q * L1) * Ka1
Eq2 = (Q + L1 * Ga1) * T2 * Ka1
Eq1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1
Eq2V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq2
QQ = 0
Loop
JEqH = Eq1H + Eq2H
JEqV = Eq1V + Eq2V
Mq1H = Ea1H * (H1 / 2) + T2
Mq2H = Ea2H * (T2 / 2)
Mq1V = Ea1V * (A + B + C + (D / 2))
Mq2V = Ea2V * (L)
JMqH = Mq1H + Mq2H
JMqV = Mq1V + Mq2V

'Beban Tanah'
Ea1 = 0.5 * (L1) ^ 2 * Ga1 * Ka1
Ea2 = ((L1 * Ga1) * Ka1) * T2
Ea3 = 0.5 * (T2) ^ 2 * Ga1 * Ka1
Ea1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
Ea2H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea2
Ea3H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea3
Ea1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
Ea2V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea2
Ea3V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea3
JEaV = Ea1V + Ea2V + Ea3V
JEaH = Ea1H + Ea2H + Ea3H
Ma1H = Ea1H * (H1 / 3) + T2
Ma2H = Ea2H * (T2 / 2)
Ma3H = Ea3H * (T2 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) * D))
Ma2V = Ea2V * (L)
Ma3V = Ea3V * (L)
JMaH = Ma1H + Ma2H + Ma3H
JMaV = Ma1V + Ma2V + Ma3V

'Beban Air'
Pair = 0.5 * (L1 + T2) ^ 2 * Gw
PairH = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Pair
PairV = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Pair
MairH = PairH * (Hwt / 3)
MairV = PairV * (L
Mc1Hi = C1H * (H1 / 2)
Mc1Vi = C1V * (B + C + ((D / 2)))

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = T2 * 2 * Ch1 * ((Ka1) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C2
C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C2
Mc1H = C1H * (H1 / 2) + T2
Mc2H = C2H * (T2 / 2)
Mc1V = C1V * (A + B + C + (D / 2))
Mc2V = C2V * (L)
JCH = C1H + C2H
JCV = C1V + C2V
JMCH = Mc1H + Mc2H
JMCV = Mc1V + Mc2V

EaV = (JEqV + JEaV) - JCV
Ea = (JEqH + JEaH) - JCH
MaV = (JMqV + JMaV) - JMCV
Ma = (JMqH + JMaH) - JMCH

'Gaya Internal'
'Beban Merata'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Mq1Hi = Eq1Hi * (H1 / 2)
Mq1Vi = Eq1Vi * (B + C + (D / 2))
QQ = 0
Loop
'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ma1Hi = Ea1Hi * (H1 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * D))

'Cohesi'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1i
C1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1i
'Beban Tanah'
Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
```

```
JEqHi = Eq1Hi
JEqVi = Eq1Vi
JMqHi = Mq1Hi
JMqVi = Mq1Vi
JEaVi = Ea1Vi
JEaHi = Ea1Hi
JMaHi = Ma1Hi
JMaVi = Ma1Vi
JCHi = C1Hi
JCVi = C1Vi
JMCHi = Mc1Hi
JMCVi = Mc1Vi

EaVi = (JEqVi + JEaVi) - JCVi
Eai = (JEqHi + JEaHi) - JCHi
MaVi = (JMqVi + JMaVi) - JMCVi
Mai = (JMqHi + JMaHi) - JMCHi

ElseIf Hwt < T2 Then
'Gaya Eksternal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1 = (Q * L1) * Ka1
Eq2 = (Q + L1 * Gb1) * (T2 - Lw1) * Ka1
Eq3 = (Q + L1 * Gb1 + (T2 - Lw1) * Ga1)
* Lw1 * Ka1
Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
Eq3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq3
Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
Eq3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq3
Mq1H = Eq1H * (H1 / 2) + T2
Mq2H = Eq2H * (((T2 - Hw1) / 2) + Hw1)
Mq3H = Eq3H * (Hw1 / 2)
Mq1V = Eq1V * (A + B + C + (D / 2))
Mq2V = Eq2V * (L)
Mq3V = Eq3V * (L)
QQ = 0
Loop

JEqH = Eq1H + Eq2H + Eq3H
JEqV = Eq1V + Eq2V + Eq3V
JMqH = Mq1H + Mq2H + Mq3H
JMqV = Mq1V + Mq2V + Mq3V


'Cohesi Tanah'
Ea2 = ((L1 * Gb1) * Ka2) * (T2 - Lw1)
Ea3 = 0.5 * (T2 - Lw1) ^ 2 * Gb1 * Ka1
Ea4 = ((L1 * Gb1 + (T2 - Lw1) * Ga1) *
Ka1) * Lw1
Ea5 = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
Ea4H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea4
Ea5H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea5
Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
Ea4V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea4
Ea5V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea5
Ma1H = Ea1H * ((H1 / 3) + T2)
Ma2H = Ea2H * (((T2 - Hw1) / 2) + Hw1)
Ma3H = Ea3H * (((T2 - Hw1) / 3) + Hw1)
Ma4H = Ea4H * (Hw1 / 2)
Ma5H = Ea5H * (Hw1 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) * D))
Ma2V = Ea2V * (L)
Ma3V = Ea3V * (L)
Ma4V = Ea4V * (L)
Ma5V = Ea5V * (L)
JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H
JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V

'Beban Air'
Pair = 0.5 * (Lw1) ^ 2 * Gw
PairH = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Pair
PairV = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Pair
MairH = PairH * (Hwt / 3)
MairV = PairV * (L)
JEqVi = Eq1Vi
JMqHi = Mq1Hi
JMqVi = Mq1Vi
```

```
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = T2 * 2 * Ch1 * ((Ka1) ^ 0.5)
  C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C2
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C2
   Mc1H = C1H * ((H1 / 2) + T2)
   Mc2H = C2H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (D / 2))
   Mc2V = C2V * (L)
   JCH = C1H + C2H
   JCV = C1V + C2V
   JMCH = Mc1H + Mc2H
   JMCV = Mc1V + Mc2V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Mq1Hi = Eq1Hi * (H1 / 2)
   Mq1Vi = Eq1Vi * (B + C + (D / 2))
   Loop
   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ma1Hi = Ea1Hi * (H1 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   Mc1Hi = C1H * (H1 / 2)
   Mc1Vi = C1V * (B + C + ((D / 2)))
   JEqHi = Eq1Hi
   Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
   JEaVi = Ea1Vi
   JEaHi = Ea1Hi
   JMaHi = Ma1Hi
   JMaVi = Ma1Vi
   JCHi = C1Hi
   JCVi = C1Vi
   JMCHi = Mc1Hi
   JMCVi = Mc1Vi

   EaVi = (JEqVi + JEaVi) - JCVi
   Eai = (JEqHi + JEaHi) - JCHi
   MaVi = (JMqVi + JMaVi) - JMCVi
   Mai = (JMqHi + JMaHi) - JMCHi
   End If
End Sub
Sub Kering()
On Error Resume Next
QQ = Q
   'Takanan Pasif'
   Epp = 0.5 * (T2) ^ 2 * Gb1 * Kp
   Cp = T2 * 2 * Ch1 * ((Kp) ^ 0.5)
   Mep = Epp * (T2 / 3)
   Mcp = Cp * (T2 / 2)
   Mpp = Mep + Mcp
   Ep = Epp + Cp
   'Gaya Eksternal'
   'Beban Merata Q'
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * T2 * Ka1
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
   Mq1H = Eq1H * (H1 / 2) + T2
   Mq2H = Eq2H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (D / 2))
   Mq2V = Eq2V * (A + B + C + D + E)
   QQ = 0
   Loop
   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka1) * T2
   Ea3 = 0.5 * (T2) ^ 2 * Gb1 * Ka1
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2

   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
```

```
22))) * Ea3
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
   Ma1H = Ea1H * (H1 / 3) + T2
   Ma2H = Ea2H * (H1 / 2) + T2
   Ma3H = Ea3H * (T2 / 2)
   Ma1V = Ea1V * (A + B + C + (D / 3))
   Ma2V = Ea2V * (A + B + C + (D / 2))
   Ma3V = Ea3V * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = T2 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C2
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C2
   Mc1H = C1H * (H1 / 2) + T2
   Mc2H = C2H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (D / 2))
   Mc2V = C2V * (L)
   JEqH = Eq1H + Eq2H
   JEqV = Eq1V + Eq2V
   JMqH = Mq1H + Mq2H
   JMqV = Mq1V + Mq2V
   JEaV = Ea1V + Ea2V + Ea3V
   JEaH = Ea1H + Ea2H + Ea3H
   JMaH = Ma1H + Ma2H + Ma3H
   JMaV = Ma1V + Ma2V + Ma3V
   JCH = C1H + C2H
   JCV = C1V + C2V
   JMCH = Mc1H + Mc2H
   JMCV = Mc1V + Mc2V

   EaV = (JEqV + JEaV) - JCV
   Ea = (JEqH + JEaH) - JCH
   MaV = (JMqV + JMaV) - JMCV
   Ma = (JMqH + JMaH) - JMCH

   'Gaya Internal'
   'Beban Merata'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   'Internal'
   Mq1Hi = Eq1Hi * (H1 / 2)
   Mq1Vi = Eq1Vi * (B + C + (D / 2))
   QQ = 0
   Loop
   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ma1Hi = Ea1Hi * (H1 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   Mc1Hi = C1H * (H1 / 2)
   Mc1Vi = C1V * (B + C + ((D / 2)))
   JEqHi = Eq1Hi
   JEqVi = Eq1Vi
   JMqHi = Mq1Hi
   JMqVi = Mq1Vi
   JEaVi = Ea1Vi
   JEaHi = Ea1Hi
   JMaHi = Ma1Hi
   JMaVi = Ma1Vi
   JCHi = C1Hi
   JCVi = C1Vi
   JMCHi = Mc1Hi
   JMCVi = Mc1Vi

   EaVi = (JEqVi + JEaVi) - JCVi
   Eai = (JEqHi + JEaHi) - JCHi
   MaVi = (JMqVi + JMaVi) - JMCVi
   Mai = (JMqHi + JMaHi) - JMCHi
End Sub
Sub BrtBangunan()
On Error Resume Next
   'Eksternal'
   W1 = T2 * L * gpas
   W2 = 0.5 * B * T1 * gpas
   W3 = 0.5 * D * T1 * gpas
   W4 = C * T1 * gpas
   V = W1 + W2 + W3 + W4 + EaV
   GW1 = W1 * (L / 2)
   GW2 = W2 * (A + ((2 / 3) * B))
   GW3 = W3 * (A + B + C + (D / 3))
   GW4 = W4 * (A + B + (C / 2))
Mp = GW1 + GW2 + GW3 + GW4 + MaV +
Mpp
      If Hwt = H1 Then
         pesan1 = "Berat Volume Tanah
```

```
   Wi2 = 0.5 * B * T1 * gpas
   Wi3 = 0.5 * D * T1 * gpas
   Wi4 = C * T1 * gpas
   Vi = Wi2 + Wi3 + Wi4 + EaVi
   GWi2 = Wi2 * (A + ((2 / 3) * B))
   GWi3 = Wi3 * (A + B + C + (D / 3))
   GWi4 = Wi4 * (A + B + (C / 2))
   Mpi = GWi2 + GWi3 + GWi4 + MaVi +
Mpp
End Sub
Sub Stabilitas()
Teknetto = Text5.Text
On Error Resume Next
   If Option1.Value = True Then
    Gf = Ga1
   ElseIf Option2.Value = True Then
   Gf = Gb1
   End If
   'Internal'

   Eksi = (((((B + C + D) / 2) - ((Mpi - Mai) /
Vi)) * (6 / (B + C + D))) - 1)
   Eks2 = (((B + C + D) / 2) - ((Mpi - Mai) /
Vi))
   Desaki = ((((V / (B + C + D)) * (1 + ((6 *
Eks2) / (B + C + D)))) / Desaktnh) - 1)
   Tariki = ((((V / (B + C + D)) * (1 - ((6 *
Eks2) / (B + C + D)))) / Tariktnh) - 1)
   Geseri = ((((3 / 2) * (Eai / (B + C + D))) /
Gesertnh) - 1)

   'Eksternal'
   Eks = ((((L / 2) - ((Mp - Ma) / V)) * (6 / L))
- 1)
   Eks1 = ((L / 2) - ((Mp - Ma) / V))
   Guling = (((Mp / Ma) / 1.5) - 1)
   Geser = (((((V * (Tan(Phi1 / (180 * 7 /
22)))) + Ep) / Ea) / 1.5) - 1)
   Dukungmax = ((((V / L) * (1 + ((6 * Eks1) /
L))) / Teknetto) - 1)
   Dukungmin = ((L / (6 * Eks1)) - 1)
   End Sub
Sub Gammatnh()
On Error Resume Next
   Do While xx <> 0

   MDIForm1.StatusBar1.Panels("koko").Text
= "Data Berat volume tanah"
   H1 = Text3.Text
   If Option1.Value = True Then GoTo
BBasah
   If Option2.Value = True Then GoTo
KKering
BBasah:
Terendam Lapis 1="
      Ga1 = InputBox(pesan1, "Gamma
Aksen")
   ElseIf Hwt < H1 Then
      pesan1 = "Berat Volume Tanah
Terendam Lapis 1="
pesan2 = "Berat Volume Tanah Basah 1="
Ga1 = InputBox(pesan1, "Gamma Aksen")
Gb1 = InputBox(pesan2, "Gamma Basah")
   End If
      xx = 0
   Exit Sub
KKering: pesan1 = "Berat Volume Tanah
Basah Lapis 1="Gb1 = InputBox(pesan1,
"Gamma Basah")
   xx = 0
  Loop
MDIForm1.StatusBar1.Panels("koko").Text =
"Proses Optimasi ....."
End Sub

Private Sub Form_Load()
Me.Top = 0
Me.Left = 0
End Sub
```

Lapis 2

```
Private Sub Basah()
On Error Resume Next
   Hw1 = H1 - (Ht - Hwt)
   Hw2 = H2 - (Ht - Hwt - H1)
   DM1a = ((Hw1 * D) / T1)
   da = ((Hw2 * D) / T1)
   Lw1 = ((Hw1) / (Abs(Cos(lamda * (180 * 7
/ 22)))))
   Lw2 = ((Hw2) / (Abs(Cos(lamda * (180 * 7
/ 22)))))

   'Tekanan Pasif'
   Epp = 0.5 * (T2) ^ 2 * Ga2 * Kp
   Cp = T2 * 2 * Ch2 * ((Kp) ^ 0.5)
   Ppair = 0.5 * (T2) ^ 2 * Gw
   Mep = Ep * (T2 / 3)
   Mcp = Cp * (T2 / 2)
   Mpair = Ppair * (T2 / 3)
   Mpp = Mep + Mcp + Mair
   Ep = Epp + Cp + Ppair

   If Hwt = Ht Then
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Ga1) * L2 * Ka2
   Eq3 = (Q + L1 * Ga1 + L2 * Ga2) * T2 *
Ka2
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Mq1H = Eq1H * ((H1 / 2) + (H2 + T2))
   Mq2H = Eq2H * ((H2 / 2) + T2)
   Mq3H = Eq3H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (D / 2))
   Mq3V = Eq3V * (L)
   JEqH = Eq1H + Eq2H + Eq3H
   JEqV = Eq1V + Eq2V + Eq3V
   JMqH = Mq1H + Mq2H + Mq3H
   JMqV = Mq1V + Mq2V + Mq3V

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Ga1 * Ka1
   Ea2 = (L1 * Ga1) * Ka2 * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = (L1 * Ga1 + L2 * Ga2) * Ka2 * T2
   Ea5 = 0.5 * (T2) ^ 2 * Ga2 * Ka2
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ma1H = Ea1H * ((H1 / 3) + (H2 + T2))
   Ma2H = Ea2H * (H2 / 2) + T2
   Ma3H = Ea3H * (H2 / 3) + T2
   Ma4H = Ea4H * (T2 / 2)
   Ma5H = Ea5H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (D / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) * D))
   Ma4V = Ea4V * (L)
   Ma5V = Ea5V * (L)
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V

   'Beban Air'
   Pair = 0.5 * (L1 + L2 + T2) ^ 2 * Gw
   PairH = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * PairH
   PairV = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * PairV
   MairH = PairH * (Hwt / 3)
```

```
MairV = PairV * (L)

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3 = T2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C3
C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C3
Mc1H = C1H * ((H1 + 2) + (H2 + T2))
Mc2H = C2H * (H2 / 2) + T2
Mc3H = C3H * (T2 / 2)
Mc1V = C1V * (A + B + C + (DM1 / 2))
Mc2V = C2V * (A + B + C + (D / 2))
Mc3V = C3V * (L)
JCH = C1H + C2H + C3H
JCV = C1V + C2V + C3V
JMCH = Mc1H + Mc2H + Mc3H
JMCV = Mc1V + Mc2V + Mc3V

EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH

'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + L1 * Ga1) * L2 * Ka2
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Mq1Hi = Eq1Hi * ((H1 / 2) + H2)
Mq2Hi = Eq2Hi * (H2 / 2)
Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
Mq2Vi = Eq2Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
Ea2i = ((L1 * Ga1) * Ka2) * L2
Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ma1Hi = Ea1Hi * ((H1 / 3) + H2)
Ma2Hi = Ea2Hi * (H2 / 2)
Ma3Hi = Ea3Hi * (H2 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * DM1a))
Ma2Vi = Ea2Vi * (B + C + (DM1 / 2))
Ma3Vi = Ea3Vi * (B + C + ((1 / 3) * D))

'Beban Air'
Pairi = 0.5 * (Lw1) ^ 2 * Gw
PairHi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Pairi
PairVi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Pairi
MairHi = PairHi * (Hwt / 3)
MairVi = PairVi * (B + C + ((1 / 3) * D))

'Cohesi'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
C1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
Mc1Hi = C1Hi * ((H1 / 2) + H2)
Mc2Hi = C2Hi * (H2 / 2)
Mc1Vi = C1Vi * (B + C + (DM1 / 2))
Mc2Vi = C2Vi * (B + C + (D / 2))
JEqHi = Eq1Hi + Eq2Hi
JEqVi = Eq1Vi + Eq2Vi
JMqHi = Mq1Hi + Mq2Hi
JMqVi = Mq1Vi + Mq2Vi
JEaVi = Ea1Vi + Ea2Vi + Ea3Vi
JEaHi = Ea1Hi + Ea2Hi + Ea3Hi
JMaHi = Ma1Hi + Ma2Hi + Ma3Hi
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JMaVi = Ma1Vi + Ma2Vi + Ma3Vi
JCHi = C1Hi + C2Hi
JCVi = C1Vi + C2Vi
JMCHi = Mc1Hi + Mc2Hi
JMCVi = Mc1Vi + Mc2Vi

EaVi = (JEqVi + JEaVi) - JCVi + PairVi
Eai = (JEqHi + JEaHi) - JCHi + PairHi
MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
Mai = (JMqHi + JMaHi) - JMCHi + MairHi

ElseIf Hwt > (H2 + T2) And Ht > Hwt
Then
'Gaya Eksternal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1 = Q * (L1 - Lw1) * Ka1
Eq2 = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
Eq3 = (Q + (L1 - Lw1) * Gb1 + Lw1 *
Ga1) * L2 * Ka2
Eq4 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2) * T2 * Ka2
QQ = 0
Loop
Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
Eq4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq4
Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
Eq4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq4
Mq1H = Eq1H * (((H1 - Hw1) / 2) + (Hw1
+ H2 + T2))
Mq2H = Eq2H * ((Hw1 / 2) + (H2 + T2))
Mq3H = Eq3H * ((H2 / 2) + T2)
Mq4H = Eq4H * (T2 / 2)
Mq1V = Eq1V * (A + B + C + (DM1a / 2))
Mq2V = Eq2V * (A + B + C + (DM1 / 2))
Mq3V = Eq3V * (A + B + C + (D / 2))
Mq4V = Eq4V * (L)
JEqH = Eq1H + Eq2H + Eq3H + Eq4H
JEqV = Eq1V + Eq2V + Eq3V + Eq4V
JMqH = Mq1H + Mq2H + Mq3H + Mq4H
JMqV = Mq1V + Mq2V + Mq3V + Mq4V

'Beban Tanah'
Ea1 = 0.5 * (L1 - Lw1) ^ 2 * Gb1 * Ka1
Ea2 = ((L1 - Lw1) * Gb1 * Ka1) * Lw1
Ea3 = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
Ea4 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2 * L2
Ea5 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
Ea6 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka2 * T2
Ea7 = 0.5 * (T2) ^ 2 * Ga2 * Ka2
Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
Ea6H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea6
Ea7H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea7
Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
Ea6V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea6
Ea7V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea7
Ma1H = Ea1H * (((H1 - Hw1) / 3) + (H2 +
T2))
Ma2H = Ea2H * ((Hw1 / 2) + (H2 + T2))
Ma3H = Ea3H * ((Hw1 / 3) + (H2 + T2))
Ma4H = Ea4H * (H2 / 2) + T2
Ma5H = Ea5H * (H2 / 3) + T2
Ma6H = Ea6H * (T2 / 2)
Ma7H = Ea7H * (T2 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1a))
Ma2V = Ea2V * (A + B + C + (DM1 / 2))
Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM1))
Ma4V = Ea4V * (A + B + C + (D / 2))
Ma5V = Ea5V * (A + B + C + ((1 / 3) * D))
```

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Ma6V = Ea6V * (L)
Ma7V = Ea7V * (L)
JEaV = Ea1V + Ea2V + Ea3V + Ea4V + Ea5V + Ea6V + Ea7V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H + Ea5H + Ea6H + Ea7H
JMaH = Ma1H + Ma2H + Ma3H + Ma4H + Ma5H + Ma6H + Ma7H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V + Ma5V + Ma6V + Ma7V

'Beban Air'
Pair = 0.5 * (Lw1 + L2 + T2) ^ 2 * Gw
PairH = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * PairH
PairV = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * PairH
MairH = PairV * (Hwt / 3)
MairV = PairV * (L)

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3 = T2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C3
C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C3
Mc1H = C1H * ((H1 / 2) + (H2 + T2))
Mc2H = C2H * ((H2 / 2) + T2)
Mc3H = C3H * (T2 / 2)
Mc1V = C1V * (A + B + C + (DM1 / 2))
Mc2V = C2V * (A + B + C + (D / 2))
Mc3V = C3V * (L)
JCH = C1H + C2H + C3H
JCV = C1V + C2V + C3V
JMCH = Mc1H + Mc2H + Mc3H
JMCV = Mc1V + Mc2V + Mc3V

EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH

'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + (L1 - Lw1) * Gb1) * Lw1 * Ka1
Eq3i = (Q + ((L1 - Lw1) * Gb1) + Lw1 * Ga1) * L2 * Ka2
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq3i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq3i
Mq1Hi = Eq1Hi * (((H1 - Hw1) / 2) + (Hw1 + H2))
Mq2Hi = Eq2Hi * ((Hw1 / 2) + H2)
Mq3Hi = Eq3Hi * (H2 / 2)
Mq1Vi = Eq1Vi * (B + C + (DM1a / 2))
Mq2Vi = Eq2Vi * (B + C + (DM1 / 2))
Mq3Vi = Eq3Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
Ea2i = ((L1 - Lw1) * Gb1) * Ka1 * Lw1
Ea3i = 0.5 * (Lw1) ^ 2 * Ga2 * Ka2
Ea4i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) * Ka2 * L2
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea4i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea4i
Ma1Hi = Ea1Hi * (((H1 - Hw1) / 3) + (Hw1 + H2))
Ma2Hi = Ea2Hi * ((Hw1 / 2) + H2)
Ma3Hi = Ea3Hi * ((Hw1 / 3) + H2)
Ma4Hi = Ea4Hi * (H2 / 2)
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   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1a))
   Ma2Vi = Ea2Vi * (B + C + (DM1 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM1))
   Ma4Vi = Ea4Vi * (B + C + (D / 2))

   'Beban Air'
   Pairi = 0.5 * (Lw1 + L2) ^ 2 * Gw
   PairHi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   Mc1Hi = C1H * ((H1 / 2) + H2)
   Mc2Hi = C2H * (H2 / 2)
   Mc1Vi = C1V * (B + C + (DM1 / 2))
   Mc2Vi = C2V * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi
   JCHi = C1Hi + C2Hi
   JCVi = C1Vi + C2Vi
   JMCHi = Mc1Hi + Mc2Hi
   JMCVi = Mc1Vi + Mc2Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi

   ElseIf Hwt = (H2 + T2) And Ht > Hwt
Then
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Ga2) * T2 *
Ka2
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Mq1H = Eq1H * ((H1 / 2) + (H2 + T2))
   Mq2H = Eq2H * ((H2 / 2) + T2)
   Mq3H = Eq3H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (D / 2))
   Mq3V = Eq3V * (L)
   JEqH = Eq1H + Eq2H + Eq3H
   JEqV = Eq1V + Eq2V + Eq3V
   JMqH = Mq1H + Mq2H + Mq3H
   JMqV = Mq1V + Mq2V + Mq3V

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = (L1 * Gb1) * Ka2 * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = (L1 * Gb1 + L2 * Ga2) * Ka2 * T2
   Ea5 = 0.5 * (T2) ^ 2 * Ga2 * Ka2
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
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22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ma1H = Ea1H * ((H1 / 3) + (H2 + T2))
   Ma2H = Ea2H * ((H2 / 2) + T2)
   Ma3H = Ea3H * ((H2 / 3) + T2)
   Ma4H = Ea4H * (T2 / 2)
   Ma5H = Ea5H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (D / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) * D))
   Ma4V = Ea4V * (L)
   Ma5V = Ea5V * (L)
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H +
Ma5H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V +
Ma5V

   'Beban Air'
   Pair = 0.5 * (L2 + T2) ^ 2 * Gw
   PairH = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = T2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C3
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C3
   Mc1H = C1H * ((H1 / 2) + (H2 + T2))
   Mc2H = C2H * ((H2 / 2) + T2)
   Mc3H = C3H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (D / 2))
   Mc3V = C3V * (L)
   JCH = C1H + C2H + C3H
   JCV = C1V + C2V + C3V
   JMCH = Mc1H + Mc2H + Mc3H
   JMCV = Mc1V + Mc2V + Mc3V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Gb1) * L2 * Ka2
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Mq1Hi = Eq1Hi * ((H1 / 2))
   Mq2Hi = Eq2Hi * (H2 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (D / 2))

   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2i = ((L1 * Gb1) * Ka2) * L2
   Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ma1Hi = Ea1H * ((H1 / 3) + H2)
   Ma2Hi = Ea2H * (H2 / 2)
   Ma3Hi = Ea3H * (H2 / 3)
   Ma1Vi = Ea1V * (B + C + ((1 / 3) * DM1))
   Ma2Vi = Ea2V * (B + C + (D / 2))
   Ma3Vi = Ea3V * (B + C + ((1 / 3) * D))

   'Beban Air'
   Pairi = 0.5 * (L2) ^ 2 * Gw
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```
   PairHi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   Mc1Hi = C1H * ((H1 / 2) + H2)
   Mc2Hi = C2H * (H2 / 2)
   Mc1Vi = C1V * (B + C + (DM1 / 2))
   Mc2Vi = C2V * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi
   JEqVi = Eq1Vi + Eq2Vi
   JMqHi = Mq1Hi + Mq2Hi
   JMqVi = Mq1Vi + Mq2Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi
   JCHi = C1Hi + C2Hi
   JCVi = C1Vi + C2Vi
   JMCHi = Mc1Hi + Mc2Hi
   JMCVi = Mc1Vi + Mc2Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi

   ElseIf Hwt > T2 And (H2 + T2) > Hwt
Then
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = Q * (L1) * Ka1
   Eq2 = (Q + (L1) * Gb1) * (L2 - Lw2) * Ka2
   Eq3 = (Q + (L1) * Gb1 + (L2 - Lw2) *
Gb2) * Lw2 * Ka2
   Eq4 = (Q + (L1) * Gb1 + (L2 - Lw2) * Gb2
+ Lw2 * Ga2) * T2 * Ka2
   QQ = 0
   Loop

   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq4
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq4
   Mq1H = Eq1H * ((H1 / 2) + (H2 + T2))
   Mq2H = Eq2H * (((H2 - Hw2) / 2) + (Hw2
+ T2))
   Mq3H = Eq3H * ((Hw2 / 2) + T2)
   Mq4H = Eq4H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (da / 2))
   Mq3V = Eq3V * (A + B + C + (D / 2))
   Mq4V = Eq4V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1) * Gb1 * Ka2) * (L2 - Lw2)
   Ea3 = 0.5 * (L2 - Lw2) ^ 2 * Gb2 * Ka2
   Ea4 = ((L1 * Gb1 + (L2 - Lw2) * Ga2) *
Ka2) * Lw2
   Ea5 = 0.5 * (Lw2) ^ 2 * Ga2 * Ka2
   Ea6 = ((L1 - L1) * Gb1 + (L2 - Lw2) * Gb2
+ Lw2 * Ga2) * Ka2 * T2
   Ea7 = 0.5 * (T2) ^ 2 * Ga2 * Ka2
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea7
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
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```
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea7
   Ma1H = Ea1H * ((H1 / 3) + (H2 + T2))
   Ma2H = Ea2H * (((H2 - Hw2) / 2) + (Hw2
+ T2))
   Ma3H = Ea3H * (((H2 - Hw2) / 3) + (Hw2
+ T2))
   Ma4H = Ea4H * ((Hw2 / 2) + T2)
   Ma5H = Ea5H * ((Hw2 / 3) + T2)
   Ma6H = Ea6H * (T2 / 2)
   Ma7H = Ea7H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (da / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
da))
   Ma4V = Ea4V * (A + B + C + (D / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) * D))
   Ma6V = Ea6V * (L)
   Ma7V = Ea7V * (L)
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H +
Ma5H + Ma6H + Ma7H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V +
Ma5V + Ma6V + Ma7V

   'Beban Air'
   Pair = 0.5 * (Lw2 + T2) ^ 2 * Gw
   PairH = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = T2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C3
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C3
   Mc1H = C1H * ((H1 / 2) + (H2 + T2))
   Mc2H = C2H * ((H2 / 2) + T2)
   Mc3H = C3H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (D / 2))
   Mc3V = C3V * (L)
   JCH = C1H + C2H + C3H
   JCV = C1V + C2V + C3V
   JMCH = Mc1H + Mc2H + Mc3H
   JMCV = Mc1V + Mc2V + Mc3V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Gb1) * (L2 - Lw2) * Ka1
   Eq3i = ((Q + L1 * Gb1) + (L2 - Lw2) *
Gb2) * Lw2 * Ka2
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
   Mq1Hi = Eq1Hi * ((H1 / 2) + H2)
   Mq2Hi = Eq2Hi * (((H2 - Hw2) / 2) +
Hw2)
   Mq3Hi = Eq3Hi * (Hw2 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (da / 2))
```

```
    'Beban Tanah'
    Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
    Ea2i = (L1 * Gb1) * Ka2 * (L2 - Lw2)
    Ea3i = 0.5 * (L2 - Lw2) ^ 2 * Gb2 * Ka2
    Ea4i = (L1 * Gb1 + (L2 - Lw2) * Gb2) *
Ka2 * Lw2
    Ea5i = 0.5 * (Lw2) ^ 2 * Ga2 * Ka2
    Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
    Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
    Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
    Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
    Ea5Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5i
    Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
    Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
    Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
    Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
    Ea5Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5i
    Ma1Hi = Ea1Hi * ((H1 / 3) + H2)
    Ma2Hi = Ea2Hi * (((H2 - Hw2) / 2) + Hw2)
    Ma3Hi = Ea3Hi * (((H2 - Hw2) / 3) + Hw2)
    Ma4Hi = Ea4Hi * (Hw2 / 2)
    Ma5Hi = Ea5Hi * (Hw2 / 3)
    Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
    Ma2Vi = Ea2Vi * (B + C + (da / 2))
    Ma3Vi = Ea3Vi * (B + C + ((1 / 3) * da))
    Ma4Vi = Ea4Vi * (B + C + (D / 2))
    Ma5Vi = Ea5Vi * (B + C + ((1 / 3) * D))

    'Beban Air'
    Pairi = 0.5 * (Lw2) ^ 2 * Gw
    PairHi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Pairi
    PairVi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Pairi
    MairHi = PairHi * (Hwt / 3)
    MairVi = PairVi * (B + C + ((1 / 3) * D))

    'Cohesi'
    C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
    C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
    C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
    C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
    Mc1Hi = C1Hi * ((H1 / 2) + H2)
    Mc2Hi = C2Hi * (H2 / 2)
    Mc1Vi = C1Vi * (B + C + (DM1 / 2))
    Mc2Vi = C2Vi * (B + C + (D / 2))
    JEqHi = Eq1Hi + Eq2Hi + Eq3Hi
    JEqVi = Eq1Vi + Eq2Vi + Eq3Vi
    JMqHi = Mq1Hi + Mq2Hi + Mq3Hi
    JMqVi = Mq1Vi + Mq2Vi + Mq3Vi
    JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi
    JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi
    JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi
    JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi
    JCHi = C1Hi + C2Hi
    JCVi = C1Vi + C2Vi
    JMCHi = Mc1Hi + Mc2Hi
    JMCVi = Mc1Vi + Mc2Vi

    EaVi = (JEqVi + JEaVi) - JCVi + PairVi
    Eai = (JEqHi + JEaHi) - JCHi + PairHi
    MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
    Mai = (JMqHi + JMaHi) - JMCHi +
MairHi


    ElseIf Hwt = T2 And (H2 + T2) > Hwt
Then
    'Gaya Eksternal'
    'Beban Merata Q'
    QQ = Q
    Do While QQ <> 0
    Eq1 = (Q * L1) * Ka1
    Eq2 = (Q + L1 * Gb1) * L2 * Ka2
    Eq3 = (Q + L1 * Gb1 + L2 * Gb2) * T2 *
Ka2
    QQ = 0
    Loop
    Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
    Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
    Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Mq3Vi = Eq3Vi * (B + C + (D / 2))
22))) * C2i
    C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
    Mc1Hi = C1Hi * ((H1 / 2) + H2)
    Mc2Hi = C2Hi * (H2 / 2)
    Mc1Vi = C1Vi * (B + C + (DM1 / 2))
    Mc2Vi = C2Vi * (B + C + (D / 2))
    JEqHi = Eq1Hi + Eq2Hi + Eq3Hi
    JEqVi = Eq1Vi + Eq2Vi + Eq3Vi
    JMqHi = Mq1Hi + Mq2Hi + Mq3Hi
    JMqVi = Mq1Vi + Mq2Vi + Mq3Vi
    JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi
    JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi
    JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi
    JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi
    JCHi = C1Hi + C2Hi
    JCVi = C1Vi + C2Vi
    JMCHi = Mc1Hi + Mc2Hi
    JMCVi = Mc1Vi + Mc2Vi

    EaVi = (JEqVi + JEaVi) - JCVi + PairVi
    Eai = (JEqHi + JEaHi) - JCHi + PairHi
    MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
    Mai = (JMqHi + JMaHi) - JMCHi +
MairHi
```

```
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Mq1H = Eq1H * ((H1 / 2) + (H2 + T2))
   Mq2H = Eq2H * ((H2 / 2) + T2)
   Mq3H = Eq3H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Gb2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Gb2) * Ka2) * T2
   Ea5 = 0.5 * (T2) ^ 2 * Gb2 * Ka2
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ma1H = Ea1H * ((H1 / 3) + (H2 + T2))
   Ma2H = Ea2H * ((H2 / 2) + T2)
   Ma3H = Ea3H * ((H2 / 3) + T2)
   Ma4H = Ea4H * (T2 / 2)
   Ma5H = Ea5H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (D / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) * D))
   Ma4V = Ea4V * (L)
   Ma5V = Ea5V * (L)

   'Beban Air'
   Pair = 0.5 * (T2) ^ 2 * Gw
   PairH = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = T2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C3
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C3
   Mc1H = C1H * ((H1 / 2) + (H2 + T2))
   Mc2H = C2H * ((H2 / 2) + T2)
   Mc3H = C3H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (D / 2))
   Mc3V = C3V * (L)
   JEqH = Eq1H + Eq2H + Eq3H
   JEqV = Eq1V + Eq2V + Eq3V
   JMqH = Mq1H + Mq2H + Mq3H
   JMqV = Mq1V + Mq2V + Mq3V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V
   JCH = C1H + C2H + C3H
   JCV = C1V + C2V + C3V
   JMCH = Mc1H + Mc2H + Mc3H
   JMCV = Mc1V + Mc2V + Mc3V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Ga1) * L2 * Ka2
   QQ = 0
   Loop
```

```
'Beban Tanah'
Ea1i = 0.5 * (L1) ^ 2 * Gb1 * Ka1
Ea2i = (L1 * Gb1) * Ka2 * L2
Ea3i = 0.5 * (L2) ^ 2 * Gb2 * Ka2
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea4i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea4i
Ma1Hi = Ea1Hi * ((H1 / 3) + H2)
Ma2Hi = Ea2Hi * (H2 / 2)
Ma3Hi = Ea3Hi * (H2 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * DM1))
Ma2Vi = Ea2Vi * (B + C + (D / 2))
Ma3Vi = Ea3Vi * (B + C + ((1 / 3) * D))

'Cohesi Tanah'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1i
C2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2i
C1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1i
C2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2i
Mc1Hi = C1H * ((H1 / 2) + H2)
Mc2Hi = C2H * (H2 / 2)
Mc1Vi = C1V * (B + C + (DM1 / 2))
Mc2Vi = C2V * (B + C + (D / 2))
JEqHi = Eq1Hi + Eq2Hi
JEqVi = Eq1Vi + Eq2Vi
JMqHi = Mq1Hi + Mq2Hi
JMqVi = Mq1Vi + Mq2Vi
JEaVi = Ea1Vi + Ea2Vi + Ea3Vi
JEaHi = Ea1Hi + Ea2Hi + Ea3Hi
JMaHi = Ma1Hi + Ma2Hi + Ma3Hi
JMaVi = Ma1Vi + Ma2Vi + Ma3Vi
JCHi = C1Hi + C2Hi
JCVi = C1Vi + C2Vi
JMCHi = Mc1Hi + Mc2Hi
JMCVi = Mc1Vi + Mc2Vi

EaVi = (JEqVi + JEaVi) - JCVi
Eai = (JEqHi + JEaHi) - JCHi
MaVi = (JMqVi + JMaVi) - JMCVi
Mai = (JMqHi + JMaHi) - JMCHi
End Sub
```

Lapis 3

```
Sub Ba1()
'Gaya Eksternal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1 = (Q * L1) * Ka1
Eq2 = (Q + L1 * Ga1) * L2 * Ka2
Eq3 = (Q + L1 * Ga1 + L2 * Ga2) * L3 * Ka3
Eq4 = (Q + L1 * Ga1 + L2 * Ga2 + L3 * Ga3) * T2 * Ka3
QQ = 0
Loop
Eq1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
Eq2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2
Eq3H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea3
Eq4H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea4
Eq1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
Eq2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2
Eq3V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea3
Eq4V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea4
Mq1H = Ea1 * ((H1 / 2) + (H2 + H3 + T2))
Mq2H = Ea2 * ((H2 / 2) + (H3 + T2))
Mq3H = Ea3 * ((H3 / 2) + T2)
Mq4H = Ea4 * (T2 / 2)
Mq1V = Ea1 * (A + B + C + (DM1 / 2))
Mq2V = Ea2 * (A + B + C + (DM2 / 2))
Mq3V = Ea3 * (A + B + C + (D / 2))
Mq4V = Ea4 * (L)

'Beban Tanah'
Ea1 = 0.5 * (L1) ^ 2 * Ga1 * Ka1
Ea2 = ((L1 * Ga1) * Ka2) * L2
Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
Ea4 = ((L1 * Ga1 + L2 * Ga2) * Ka3) * L3
Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
Ea6 = ((L1 * Ga1 + L2 * Ga2 + L3 * Ga3) * Ka3) * T2
Ea7 = 0.5 * (T2) ^ 2 * Ga3 * Ka3
Ea1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
Ea2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2
```

```
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea5
   Ea6H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea6
   Ea7H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea7
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea4
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea5
   Ea6V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea6
   Ea7V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea7
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + T2))
   Ma4H = Ea4H * ((H3 / 2) + T2)
   Ma5H = Ea5H * ((H3 / 3) + T2)
   Ma6H = Ea6H * (T2 / 2)
   Ma7H = Ea7H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) * DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) * DM2))
   Ma4V = Ea4V * (A + B + C + (D / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) * D))
   Ma6V = Ea6V * (L)
   Ma7V = Ea7V * (L)

   'Beban Air'
   Pair = 0.5 * (L1 + L2 + L3) ^ 2 * Gw
   PairH = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Pair
   PairV = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = T2 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C3
   C4H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C4
   C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C3
   C4V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C4
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + T2))
   Mc3H = C3H * ((H3 / 2) + T2)
   Mc4H = C4H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (D / 2))
   Mc4V = C4V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V + Ea5V + Ea6V + Ea7V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H + Ea5H + Ea6H + Ea7H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H + Ma5H + Ma6H + Ma7H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V + Ma5V + Ma6V + Ma7V
   JCH = C1H + C2H + C3H + C4H
   JCV = C1V + C2V + C3V + C4V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Ga1) * L2 * Ka2
   Eq3i = (Q + L1 * Ga1 + L2 * Ga2) * L3 *
```

```
Ka3
  QQ = 0
  Loop
  Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
  Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
  Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
  Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
  Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
  Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
  Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3))
  Mq2Hi = Eq2Hi * ((H2 / 2) + H3)
  Mq3Hi = Eq3Hi * (H3 / 2)
  Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
  Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
  Mq3Vi = Eq3Vi * (B + C + (D / 2))

  'Beban Tanah'
  Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
  Ea2i = (L1 * Ga1) * Ka2 * L2
  Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
  Ea4i = (L1 * Ga1 + L2 * Ga2) * Ka3 * L3
  Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
  Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
  Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
  Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
  Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
  Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
  Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
  Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
  Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
  Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
  Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
  Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3))
  Ma2Hi = Ea2Hi * ((H2 / 2) + H3)
  Ma3Hi = Ea3Hi * ((H2 / 3) + H3)
  Ma4Hi = Ea4Hi * (H3 / 2)
  Ma5Hi = Ea5Hi * (H3 / 3)
  Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
  Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
  Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
  Ma4Vi = Ea4Vi * (B + C + (D / 2))
  Ma5Vi = Ea5Vi * (B + C + ((1 / 3) * D))

  'Beban Air'
  Pairi = 0.5 * (L1 + L2 + L3) ^ 2 * Gw
  PairHi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Pairi
  PairVi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Pairi
  MairHi = PairHi * (Hwt / 3)
  MairVi = PairVi * (B + C + ((1 / 3) * D))

  'Cohesi'
  C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
  C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
  C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
  C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
  C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
  C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
  C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
  C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
  C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
  Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3))
  Mc2Hi = C2Hi * ((H2 / 2) + H3)
  Mc3Hi = C3Hi * (H3 / 2)
  Mc1Vi = C1Vi * (B + C + (DM1 / 2))
  Mc2Vi = C2Vi * (B + C + (DM2 / 2))
  Mc3Vi = C3Vi * (B + C + (D / 2))
  JEqHi = Eq1Hi + Eq2Hi + Eq3Hi
  JEqVi = Eq1Vi + Eq2Vi + Eq3Vi
  JMqHi = Mq1Hi + Mq2Hi + Mq3Hi
  JMqVi = Mq1Vi + Mq2Vi + Mq3Vi
  JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi
  JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi
  JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi
  JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi
  JCHi = C1Hi + C2Hi + C3Hi
  JCVi = C1Vi + C2Vi + C3Vi
  JMCHi = Mc1Hi + Mc2Hi + Mc3Hi
  JMCVi = Mc1Vi + Mc2Vi + Mc3Vi

  EaVi = (JEqVi + JEaVi) - JCVi + PairVi
```

```
    Eai = (JEqHi + JEaHi) - JCHi + PairHi
    MaVi = (JMqVi + JMaV) - JMCVi +
MairVi
    Mai = (JMqHi + JMaH) - JMCHi + MairHi

End Sub
Sub Ba2()
    'Gaya Eksternal'
    'Beban Merata Q'
    QQ = Q
    Do While QQ <> 0
    Eq1 = Q * (L1 - Lw1) * Ka1
    Eq2 = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
    Eq3 = (Q + (L1 - Lw1) * Gb1 + Lw1 *
Ga1) * L2 * Ka2
    Eq4 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2) * L3 * Ka3
    Eq5 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3) * T2 * Ka3
    QQ = 0
    Loop
    Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
    Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
    Eq4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
    Eq5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq5
    Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
    Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
    Eq4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
    Eq5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq5
    Mq1H = Eq1H * (((H1 - Hw1) / 2) + (Hw1
+ H2 + H3 + T2))
    Mq2H = Eq2H * ((Hw1 / 2) + (H2 + H3 +
T2))
    Mq3H = Eq3H * ((H2 / 2) + (H3 + T2))
    Mq4H = Eq4H * ((H3 / 2) + T2)
    Mq5H = Eq5H * (T2 / 2)
    Mq1V = Eq1V * (A + B + C + (DM1a / 2))
    Mq2V = Eq2V * (A + B + C + (DM1 / 2))
    Mq3V = Eq3V * (A + B + C + (DM2 / 2))
    Mq4V = Eq4V * (A + B + C + (D / 2))
    Mq5V = Eq5V * (L)
    'Beban Tanah'
    Ea1 = 0.5 * (L1 - Lw1) ^ 2 * Gb1 * Ka1
    Ea2 = ((L1 - Lw1) * Gb1 * Ka1) * Lw1
    Ea3 = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
    Ea4 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2 * L2
    Ea5 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
    Ea6 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3 * L3
    Ea7 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
    Ea8 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3 * T2
    Ea9 = 0.5 * (T2) ^ 2 * Ga3 * Ka3
    Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
    Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
    Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
    Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
    Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
    Ea6H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
    Ea7H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
    Ea8H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea8
    Ea9H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea9
    Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
    Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
    Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
    Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
    Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
    Ea6V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
    Ea7V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
    Ea8V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea8
    Ea9V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea9
    Ma1H = Ea1H * (((H1 - Hw1) / 3) + (Hw1
+ H2 + H3 + T2))
    Ma2H = Ea2H * ((Hw1 / 2) + (H2 + H3 +
T2))
    Ma3H = Ea3H * ((Hw1 / 3) + (H2 + H3 +
T2))
```

```
Ma4H = Ea4H * ((H2 / 2) + (H3 + T2))
Ma5H = Ea5H * ((H2 / 3) + (H3 + T2))
Ma6H = Ea6H * ((H3 / 2) + T2)
Ma7H = Ea7H * ((H3 / 3) + T2)
Ma8H = Ea8H * (T2 / 2)
Ma9H = Ea9H * (T2 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1a))
Ma2V = Ea2V * (A + B + C + (DM1 / 2))
Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM1))
Ma4V = Ea4V * (A + B + C + (DM2 / 2))
Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM2))
Ma6V = Ea6V * (A + B + C + (D / 2))
Ma7V = Ea7V * (A + B + C + ((1 / 3) * D))
Ma8V = Ea8V * (L)
Ma9V = Ea9V * (L)

'Beban Air'
Pair = 0.5 * (Lw1 + L2 + L3) ^ 2 * Gw
PairH = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Pair
PairV = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Pair
MairH = PairH * (Hwt / 3)
MairV = PairV * (L)

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
C4 = T2 * 2 * Ch3 * ((Ka3) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
C4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C4
C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
C4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C4
Mc1H = C1H * ((H1 / 2) + (H2 + H3 + T2))
Mc2H = C2H * ((H2 / 2) + (H3 + T2))
Mc3H = C3H * ((H3 / 2) + T2)
Mc4H = C4H * (T2 / 2)
Mc1V = C1V * (A + B + C + (DM1 / 2))
Mc2V = C2V * (A + B + C + (DM2 / 2))
Mc3V = C3V * (A + B + C + (D / 2))
Mc4V = C4V * (L)
JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H
JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V
JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H
JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V
JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H
JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V + Ma6V + Ma7V + Ma8V + Ma9V
JCH = C1H + C2H + C3H + C4H
JCV = C1V + C2V + C3V + C4V
JMCH = Mc1H + Mc2H + Mc3H + Mc4H
JMCV = Mc1V + Mc2V + Mc3V + Mc4V

EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH

'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
Eq3i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1) * L2 * Ka2
Eq4i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1 + L2 * Ga2) * L3 * Ka3
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
Eq4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
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22))) * Eq3i
   Eq4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
   Mq1Hi = Eq1Hi * (((H1 - Hw1) / 2) +
(Hw1 + H2 + H3))
   Mq2Hi = Eq2Hi * ((Hw1 / 2) + (H2 + H3))
   Mq3Hi = Eq3Hi * ((H2 / 2) + H3)
   Mq4Hi = Eq4Hi * (H3 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1a / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM1 / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM2 / 2))
   Mq4Vi = Eq4Vi * (B + C + (D / 2))

   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
   Ea2i = ((L1 - Lw1) * Gb1) * Ka1 * Lw1
   Ea3i = 0.5 * (Lw1) ^ 2 * Ga2 * Ka2
   Ea4i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2 * L2
   Ea5i = 0.5 * L2 ^ 2 * Ga3 * Ka3
   Ea6i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3 * L3
   Ea7i = 0.5 * L3 ^ 2 * Ga3 * Ka3
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7i
   Ma1Hi = Ea1Hi * (((H1 - Hw1) / 3) + (Hw1
+ H2 + H3))
   Ma2Hi = Ea2Hi * ((Hw1 / 2) + (H2 + H3))
   Ma3Hi = Ea3Hi * ((Hw1 / 3) + (H2 + H3))
   Ma4Hi = Ea4Hi * ((H2 / 2) + H3)
   Ma5Hi = Ea5Hi * ((H2 / 3) + H3)
   Ma6Hi = Ea6Hi * (H3 / 2)
   Ma7Hi = Ea7Hi * (H3 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1a))
   Ma2Vi = Ea2Vi * (B + C + (DM1 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM1))
   Ma4Vi = Ea4Vi * (B + C + (DM2 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM2))
   Ma6Vi = Ea6Vi * (B + C + (D / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) * D))

   'Beban Air'
   Pairi = 0.5 * (Lw1 + L2 + L3) ^ 2 * Gw
   PairHi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3))
   Mc2Hi = C2Hi * ((H2 / 2) + H3)
   Mc3Hi = C3Hi * (H3 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi + Ea6Vi + Ea7Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
```

```
+ Ea5Hi + Ea6Hi + Ea7Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi
   JCHi = C1Hi + C2Hi + C3Hi
   JCVi = C1Vi + C2Vi + C3Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi
End Sub
Sub Ba3()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Ga2) * L3 *
Ka3
   Eq4 = (Q + L1 * Gb1 + L2 * Ga2 + L3 *
Ga3) * T2 * Ka3
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Mq1H = Eq1 * ((H1 / 2) + (H2 + H3 + T2))
   Mq2H = Eq2 * ((H2 / 2) + (H3 + T2))
   Mq3H = Eq3 * ((H3 / 2) + T2)
   Mq4H = Eq4 * (T2 / 2)
   Mq1V = Eq1 * (A + B + C + (DM1 / 2))
   Mq2V = Eq2 * (A + B + C + (DM2 / 2))
   Mq3V = Eq3 * (A + B + C + (D / 2))
   Mq4V = Eq4 * (L)
   'Beban Tanah'
   Ea1 = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Ga2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Gb1 + L2 * Ga2 + L3 * Ga3)
* Ka3) * T2
   Ea7 = 0.5 * (T2) ^ 2 * Ga3 * Ka3
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 +
T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + T2))
   Ma4H = Ea4H * ((H3 / 2) + T2)
   Ma5H = Ea5H * ((H3 / 3) + T2)
   Ma6H = Ea6H * (T2 / 2)
   Ma7H = Ea7H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2))
   Ma4V = Ea4V * (A + B + C + (D / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) * D))
   Ma6V = Ea6V * (L)
   Ma7V = Ea7V * (L)
```

```
'Beban Air'
Pair = 0.5 * (Hwt) ^ 2 * Gw
PairH = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Pair
PairV = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Pair
MairH = Pair * (Hwt / 3)
MairV = Pair * (L)

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
C4 = T2 * 2 * Ch3 * ((Ka3) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C3
C4H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C4
C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C3
C4V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C4
Mc1H = C1H * ((H1 / 2) + (H2 + H3 + T2))
Mc2H = C2H * ((H2 / 2) + (H3 + T2))
Mc3H = C3H * ((H3 / 2) + T2)
Mc4H = C4H * (T2 / 2)
Mc1V = C1V * (A + B + C + (DM1 / 2))
Mc2V = C2V * (A + B + C + (DM2 / 2))
Mc3V = C3V * (A + B + C + (D / 2))
Mc4V = C4V * (L)
JEqH = Eq1H + Eq2H + Eq3H + Eq4H
JEqV = Eq1V + Eq2V + Eq3V + Eq4V
JMqH = Mq1H + Mq2H + Mq3H + Mq4H
JMqV = Mq1V + Mq2V + Mq3V + Mq4V
JEaV = Ea1V + Ea2V + Ea3V + Ea4V + Ea5V + Ea6V + Ea7V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H + Ea5H + Ea6H + Ea7H
JMaH = Ma1H + Ma2H + Ma3H + Ma4H + Ma5H + Ma6H + Ma7H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V + Ma5V + Ma6V + Ma7V
JCH = C1H + C2H + C3H + C4H
JCV = C1V + C2V + C3V + C4V
JMCH = Mc1H + Mc2H + Mc3H + Mc4H
JMCV = Mc1V + Mc2V + Mc3V + Mc4V
EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH

'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + L1 * Gb1) * L2 * Ka2
Eq3i = (Q + L1 * Gb1 + L2 * Ga2) * L3 * Ka3
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3))
Mq2Hi = Eq2Hi * ((H2 / 2) + H3)
Mq3Hi = Eq3Hi * (H3 / 2)
Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
Mq3Vi = Eq3Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
Ea2i = (L1 * Gb1) * Ka2 * L2
Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
Ea4i = (L1 * Gb1 + L2 * Ga2) * Ka3 * L3
Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea4i
Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea5i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
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    Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
    Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
    Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3))
    Ma2Hi = Ea2Hi * ((H2 / 2) + H3)
    Ma3Hi = Ea3Hi * ((H2 / 3) + H3)
    Ma4Hi = Ea4Hi * (H3 / 2)
    Ma5Hi = Ea5Hi * (H3 / 3)
    Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
    Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
    Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
    Ma4Vi = Ea4Vi * (B + C + (D / 2))
    Ma5Vi = Ea5Vi * (B + C + ((1 / 3) * D))

    'Cohesi'
    C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
    C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
    C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
    C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
    C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
    C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
    C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
    C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
    Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3))
    Mc2Hi = C2Hi * ((H2 / 2) + H3)
    Mc3Hi = C3Hi * (H3 / 2)
    Mc1Vi = C1Vi * (B + C + (DM1 / 2))
    Mc2Vi = C2Vi * (B + C + (DM2 / 2))
    Mc3Vi = C3Vi * (B + C + (D / 2))
    JEqHi = Eq1Hi + Eq2Hi + Eq3Hi
    JEqVi = Eq1Vi + Eq2Vi + Eq3Vi
    JMqHi = Mq1Hi + Mq2Hi + Mq3Hi
    JMqVi = Mq1Vi + Mq2Vi + Mq3Vi
    JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi +
Ea5Vi
    JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi +
Ea5Hi
    JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi
    JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi
    JCHi = C1Hi + C2Hi + C3Hi
    JCVi = C1Vi + C2Vi + C3Vi
    JMCHi = Mc1Hi + Mc2Hi + Mc3Hi
    JMCVi = Mc1Vi + Mc2Vi + Mc3Vi
    EaVi = (JEqVi + JEaVi) - JCVi
    Eai = (JEqHi + JEaHi) - JCHi
    MaVi = (JMqVi + JMaVi) - JMCVi
    Mai = (JMqHi + JMaHi) - JMCHi

End Sub
Sub Parameter()
On Error Resume Next
    Q = Q.Text
    T1 = T1.Text
    gpas = gpas.Text
    Phi1 = Text1.Text
    Ch1 = Text2.Text
    H1 = Text3.Text
    Delta1 = Text4.Text
    Phi2 = Text5.Text
    Ch2 = Text6.Text
    H2 = Text7.Text
    Delta2 = Text8.Text
    Phi3 = Text9.Text
    Ch3 = Text10.Text
    H3 = Text11.Text
    Delta3 = Text12.Text
    Hwt = Hwt.Text
    alfa = (Atn(T1 / D)) * (180 * (7 / 22))
    lamda = (180 - (90 + alfa))
    L = (A + B + C + D + E)
    Lt = ((T1 ^ 2) + (D ^ 2)) ^ (0.5)
    Ht = T1 + T2
    L1 = (H1 / (Cos(lamda / (180 * 7 / 22))))
    L2 = (H2 / (Cos(lamda / (180 * 7 / 22))))
    L3 = (H3 / (Cos(lamda / (180 * 7 / 22))))
    DM1 = ((H1 * D) / T1)
    DM2 = (H2 * D) / T1
    Ka1 = ((Sin((alfa + Phi1) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta1) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi1 + Delta1) / (180 * 7 / 22))) *
(Sin(Phi1 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta1) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
    Ka2 = ((Sin((alfa + Phi2) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta2) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi2 + Delta2) / (180 * 7 / 22))) *
(Sin(Phi2 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta2) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
    Ka3 = ((Sin((alfa + Phi3) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta3) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi3 + Delta3) / (180 * 7 / 22))) *
(Sin(Phi3 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta3) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
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/ 22))))) ^ 0.5)) ^ 2)
   Kp = ((Sin((alfa - Phi3) / (180 * 7 / 22))) ^
2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa + Delta3) / (180 * 7 / 22)))) * (1 -
((((Sin((Phi3 + Delta3) / (180 * 7 / 22))) *
(Sin(Phi3 / (180 * 7 / 22)))) / ((Sin((alfa +
Delta3) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
End Sub

Lapis4
Sub Ba1()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Ga1) * L2 * Ka2
   Eq3 = (Q + L1 * Ga1 + L2 * Ga2) * L3 *
Ka3
   Eq4 = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
Ga3) * L4 * Ka4
   Eq5 = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
Ga3 + L4 * Ga4) * T2 * Ka4
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mq3H = Eq3H * ((H3 / 2) + (H4 + T2))
   Mq4H = Eq4H * ((H4 / 2) + T2)
   Mq5H = Eq5H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (A + B + C + (DM3 / 2))
   Mq4V = Eq4V * (A + B + C + (D / 2))
   Mq5V = Eq5V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Ga1 * Ka1
   Ea2 = (L1 * Ga1) * Ka2 * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = (L1 * Ga1 + L2 * Ga2) * Ka3 * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Ga1 + L2 * Ga2 + L3 * Ga3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea8 = ((L1 * Ga1 + L2 * Ga2 + L3 * Ga3 +
L4 * Ga4) * Ka4) * (T2)
   Ea9 = 0.5 * (T2) ^ 2 * Ga4 * Ka4
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 +
```

```
T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 +
T2))
   Ma4H = Ea4H * ((H3 / 2) + (H4 + T2))
   Ma5H = Ea5H * ((H3 / 3) + (H4 + T2))
   Ma6H = Ea6H * ((H4 / 2) + T2)
   Ma7H = Ea7H * ((H4 / 3) + T2)
   Ma8H = Ea8H * (T2 / 2)
   Ma9H = Ea9H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2))
   Ma4V = Ea4V * (A + B + C + (DM3 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM3))
   Ma6V = Ea6V * (A + B + C + (D / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) * D))
   Ma8V = Ea8V * (L)
   Ma9V = Ea9V * (L)

   'Beban Air'
   Pair = 0.5 * (L1 + L2 + L3 + L4 + T2) ^ 2 *
Gw
   PairH = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = T2 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C5
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C5
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + T2))
   Mc4H = C4H * ((H4 / 2) + T2)
   Mc5H = C5H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (D / 2))
   Mc5V = C5V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V + Ma6V + Ma7V + Ma8V + Ma9V
   JCH = C1H + C2H + C3H + C4H
   JCV = C1V + C2V + C3V + C4V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Ga1) * L2 * Ka2
   Eq3i = (Q + L1 * Ga1 + L2 * Ga2) * L3 *
Ka3
   Eq4i = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
Ga3) * L4 * Ka4
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
```

```
Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 + H4))
Mq2Hi = Eq2Hi * ((H2 / 2) + (H3 + H4))
Mq3Hi = Eq3Hi * ((H3 / 2) + H4)
Mq4Hi = Eq4Hi * (H4 / 2)
Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
Mq4Vi = Eq4Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
Ea2i = (L1 * Ga1) * Ka2 * L2
Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
Ea4i = (L1 * Ga1 + L2 * Ga2) * Ka3 * L3
Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
Ea6i = (L1 * Ga1 + L2 * Ga2 + L3 * Ga3) * Ka4 * L4
Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea4i
Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea5i
Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Ea6i
Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Ea7i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea4i
Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea5i
Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Ea6i
Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Ea7i
Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 + H4))
Ma2Hi = Ea2Hi * ((H2 / 2) + (H3 + H4))
Ma3Hi = Ea3Hi * ((H2 / 3) + (H3 + H4))
Ma4Hi = Ea4Hi * ((H3 / 2) + H4)
Ma5Hi = Ea5Hi * ((H3 / 3) + H4)
Ma6Hi = Ea6Hi * (H4 / 2)
Ma7Hi = Ea7Hi * (H4 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * DM1))
Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
Ma3Vi = Ea3Vi * (B + C + ((1 / 3) * DM2))
Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
Ma5Vi = Ea5Vi * (B + C + ((1 / 3) * DM3))
Ma6Vi = Ea6Vi * (B + C + (D / 2))
Ma7Vi = Ea7Vi * (B + C + ((1 / 3) * D))

'Beban Air'
Pairi = 0.5 * (L1 + L2 + L3 + L4) ^ 2 * Gw
PairHi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Pairi
PairVi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Pairi
MairHi = PairHi * (Hwt / 3)
MairVi = PairVi * (B + C + ((1 / 3) * D))

'Cohesi'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1i
C2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2i
C3Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C3i
C4Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * C4i
C1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1i
C2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2i
C3Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C3i
C4Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * C4i
```

```
Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 + H4))
   Mc2Hi = C2Hi * ((H2 / 2) + (H3 + H4))
   Mc3Hi = C3Hi * ((H3 / 2) + H4)
   Mc4Hi = C4Hi * (H4 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi
JMqVi = Mq1Vi + Mq2Vi + Mq3Vi + Mq4Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi +
Ea5Vi + Ea6Vi + Ea7Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi +
Ea5Hi + Ea6Hi + Ea7Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi
JMCVi = Mc1Vi + Mc2Vi + Mc3Vi + Mc4Vi
   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi
End Sub
Sub Ba2()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = Q * (L1 - Lw1) * Ka1
   Eq2 = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
   Eq3 = (Q + (L1 - Lw1) * Gb1 + Lw1 *
Ga1) * L2 * Ka2
   Eq4 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2) * L3 * Ka3
   Eq5 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3) * L4 * Ka4
   Eq6 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * T2 *
Ka4
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq6
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq6
   Mq1H = Eq1H * (((H1 - Hw1) / 2) + (Hw1
+ H2 + H3 + H4 + T2))
   Mq2H = Eq2H * ((Hw1 / 2) + (H2 + H3 +
H4 + T2))
   Mq3H = Eq3H * ((H2 / 2) + (H3 + H4 +
T2))
   Mq4H = Eq4H * ((H3 / 2) + (H4 + T2))
   Mq5H = Eq5H * ((H4 / 2) + T2)
   Mq6H = Eq6H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1a / 2))
   Mq2V = Eq2V * (A + B + C + (DM1 / 2))
   Mq3V = Eq3V * (A + B + C + (DM2 / 2))
   Mq4V = Eq4V * (A + B + C + (DM3 / 2))
   Mq5V = Eq5V * (A + B + C + (D / 2))
   Mq6V = Eq6V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * (L1 - Lw1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 - Lw1) * Gb1) * Ka1 * Lw1
   Ea3 = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
   Ea4 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2 * L2
   Ea5 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea6 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3 * L3
   Ea7 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea8 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3) * Ka4 * L4
   Ea9 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea10 = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka4 * T2
   Ea11 = 0.5 * (T2) ^ 2 * Ga4 * Ka4
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
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   Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea11
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq11
   Ma1H = Eq1H * (((H1 - Hw1) / 3) + (H2 +
H3 + H4 + T2))
   Ma2H = Eq2H * ((Hw1 / 2) + (H2 + H3 +
H4 + T2))
   Ma3H = Eq3H * ((Hw1 / 3) + (H2 + H3 +
H4 + T2))
   Ma4H = Eq4H * ((H2 / 2) + (H3 + H4 +
T2))
   Ma5H = Eq5H * ((H2 / 3) + (H3 + H4 +
T2))
   Ma6H = Eq6H * ((H3 / 2) + (H4 + T2))
   Ma7H = Eq7H * ((H3 / 3) + (H4 + T2))
   Ma8H = Eq8H * ((H4 / 2) + T2)
   Ma9H = Eq9H * ((H4 / 3) + T2)
   Ma10H = Eq10H * (T2 / 2)
   Ma11H = Eq11H * (T2 / 3)
   Ma1V = Eq1V * (A + B + C + ((1 / 3) *
DM1a))
   Ma2V = Eq2V * (A + B + C + (DM1 / 2))
   Ma3V = Eq3V * (A + B + C + ((1 / 3) *
DM1))
   Ma4V = Eq4V * (A + B + C + (DM2 / 2))
   Ma5V = Eq5V * (A + B + C + ((1 / 3) *
DM2))
   Ma6V = Eq6V * (A + B + C + (DM3 / 2))
   Ma7V = Eq7V * (A + B + C + ((1 / 3) *
DM3))
   Ma8V = Eq8V * (A + B + C + (D / 2))
   Ma9V = Eq9V * (A + B + C + ((1 / 3) *
D))
   Ma10V = Eq10V * (L)
   Ma11V = Eq11V * (L)

   'Beban Air'
   Pair = 0.5 * (Lw1 + L2 + L3 + L4 + T2) ^ 2
* Gw
   PairH = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = T2 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C5
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta4 + lamda) / (180 * 7 /
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```
22))) * C5
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 + T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + T2))
   Mc4H = C4H * ((H4 / 2) + T2)
   Mc5H = C5H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (D / 2))
   Mc5V = C5V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H + Eq6H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V + Eq6V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H + Mq6H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V + Mq6V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V +
Ea10V + Ea11V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H +
Ea10H + Ea11H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H +
Ma5H + Ma6H + Ma7H + Ma8H + Ma9H +
Ma10H + Ma11H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V +
Ma5V + Ma6V + Ma7V + Ma8V + Ma9V +
Ma10V + Ma11V
   JCH = C1H + C2H + C3H + C4H + C5H
   JCV = C1V + C2V + C3V + C4V + C5V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
   Eq3i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1) * L2 * Ka2
   Eq4i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1 + L2 * Ga2) * L3 * Ka3
   Eq5i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1 + L2 * Ga2 + L3 * Ga3) * L4 * Ka4
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq5i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq5i
   Mq1Hi = Eq1Hi * (((H1 - Hw1) / 2) +
(Hw1 + H2 + H3 + H4))
   Mq2Hi = Eq2Hi * ((Hw1 / 2) + (H2 + H3 +
H4))
   Mq3Hi = Eq3Hi * ((H2 / 2) + (H3 + H4))
   Mq4Hi = Eq4Hi * ((H3 / 2) + H4)
   Mq5Hi = Eq5Hi * (H4 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1a / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM1 / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM2 / 2))
   Mq4Vi = Eq4Vi * (B + C + (DM3 / 2))
   Mq5Vi = Eq5Vi * (B + C + (D / 2))

   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
   Ea2i = ((L1 - Lw1) * Gb1) * Ka1 * Lw1
   Ea3i = 0.5 * (Lw1) ^ 2 * Ga2 * Ka2
   Ea4i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2 * L2
   Ea5i = 0.5 * L2 ^ 2 * Ga3 * Ka3
   Ea6i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3 * L3
   Ea7i = 0.5 * L3 ^ 2 * Ga4 * Ka4
   Ea8i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3) * Ka4 * L4
   Ea9i = 0.5 * L4 ^ 2 * Ga4 * Ka4
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
```

```
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9i
   Ma1Hi = Ea1Hi * (((H1 - Hw1) / 3) + (Hw1
+ H2 + H3 + H4))
   Ma2Hi = Ea2Hi * ((Hw1 / 2) + (H2 + H3 +
H4))
   Ma3Hi = Ea3Hi * ((Hw1 / 3) + (H2 + H3 +
H4))
   Ma4Hi = Ea4Hi * ((H2 / 2) + (H3 + H4))
   Ma5Hi = Ea5Hi * ((H2 / 3) + (H3 + H4))
   Ma6Hi = Ea6Hi * ((H3 / 2) + H4)
   Ma7Hi = Ea7Hi * ((H3 / 3) + H4)
   Ma8Hi = Ea8Hi * (H4 / 2)
   Ma9Hi = Ea9Hi * (H4 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1a))
   Ma2Vi = Ea2Vi * (B + C + (DM1 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM1))
   Ma4Vi = Ea4Vi * (B + C + (DM2 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM2))
   Ma6Vi = Ea6Vi * (B + C + (DM3 / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM3))
   Ma8Vi = Ea8Vi * (B + C + (D / 2))
   Ma9Vi = Ea9Vi * (B + C + ((1 / 3) * D))

   'Beban Air'
   Pairi = 0.5 * (Lw1 + L2 + L3 + L4) ^ 2 *
Gw
   PairHi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 +
H4))
   Mc2Hi = C2Hi * ((H2 / 2) + (H3 + H4))
   Mc3Hi = C3Hi * ((H3 / 2) + H4)
   Mc4Hi = C4Hi * (H4 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi
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```
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
+ Ma9Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi

End Sub
Sub Ba3()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Ga2) * L3 *
Ka3
   Eq4 = (Q + L1 * Gb1 + L2 * Ga2 + L3 *
Ga3) * L4 * Ka4
   Eq5 = (Q + L1 * Gb1 + L2 * Ga2 + L3 *
Ga3 + L4 * Ga4) * T2 * Ka4
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + T2))
   Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mq3H = Eq3H * ((H3 / 2) + (H4 + T2))
   Mq4H = Eq4H * ((H4 / 2) + T2)
   Mq5H = Eq5H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (A + B + C + (DM3 / 2))
   Mq4V = Eq4V * (A + B + C + (D / 2))
   Mq5V = Eq5V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Ga2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Gb1 + L2 * Ga2 + L3 * Ga3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea8 = ((L1 * Gb1 + L2 * Ga2 + L3 * Ga3 +
L4 * Ga4) * Ka4) * T2
   Ea9 = 0.5 * (T2) ^ 2 * Ga4 * Ka4
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta4 + lamda) / (180 * 7 /
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```
22))) * Ea6
   Ea7V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 +
T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 +
T2))
   Ma4H = Ea4H * ((H3 / 2) + (H4 + T2))
   Ma5H = Ea5H * ((H3 / 3) + (H4 + T2))
   Ma6H = Ea6H * ((H4 / 2) + T2)
   Ma7H = Ea7H * ((H4 / 3) + T2)
   Ma8H = Ea8H * (T2 / 2)
   Ma9H = Ea9H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2))
   Ma4V = Ea4V * (A + B + C + (DM3 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM3))
   Ma6V = Ea6V * (A + B + C + (D / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) * D))
   Ma8V = Ea8V * (L)
   Ma9V = Ea9V * (L)

   'Beban Air'
   Pair = 0.5 * (L2 + L3 + L4 + T2) ^ 2 * Gw
   PairH = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = T2 * 2 * Ch4 * ((Ka4) ^.0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C5
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C5
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + T2))
   Mc4H = C4H * ((H4 / 2) + T2)
   Mc5H = C5H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (D / 2))
   Mc5V = C5V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V + Ma6V + Ma7V + Ma8V + Ma9V
   JCH = C1H + C2H + C3H + C4H + C5H
   JCV = C1V + C2V + C3V + C4V + C5V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

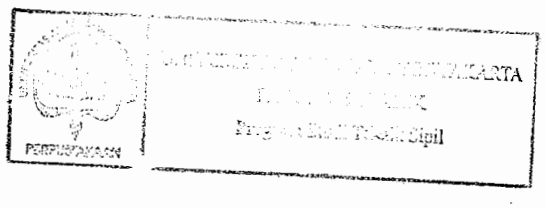
   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
```

```
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + L1 * Gb1) * L2 * Ka2
Eq3i = (Q + L1 * Gb1 + L2 * Ga2) * L3 * Ka3
Eq4i = (Q + L1 * Gb1 + L2 * Ga2 + L3 * Ga3) * L4 * Ka4
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 + H4))
Mq2Hi = Eq2Hi * ((H2 / 2) + (H3 + H4))
Mq3Hi = Eq3Hi * ((H3 / 2) + H4)
Mq4Hi = Eq4Hi * (H4 / 2)
Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
Mq4Vi = Eq4Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
Ea2i = (L1 * Gb1) * Ka2 * L2
Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
Ea4i = (L1 * Gb1 + L2 * Ga2) * Ka3 * L3
Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
Ea6i = (L1 * Gb1 + L2 * Ga2 + L3 * Ga3) * Ka4 * L4
Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea4i
Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea5i
Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Ea6i
Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Ea7i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea4i
Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea5i
Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Ea6i
Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Ea7i
Ma1Hi = Ea1Hi * ((H1 / 2) + (H2 + H3 + H4))
Ma2Hi = Ea2Hi * ((H2 / 2) + (H3 + H4))
Ma3Hi = Ea3Hi * ((H2 / 3) + (H3 + H4))
Ma4Hi = Ea4Hi * ((H3 / 2) + H4)
Ma5Hi = Ea5Hi * ((H3 / 3) + H4)
Ma6Hi = Ea6Hi * (H4 / 2)
Ma7Hi = Ea7Hi * (H4 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) * DM1))
Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
Ma3Vi = Ea3Vi * (B + C + ((1 / 3) * DM2))
Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
Ma5Vi = Ea5Vi * (B + C + ((1 / 3) * DM3))
Ma6Vi = Ea6Vi * (B + C + (D / 2))
Ma7Vi = Ea7Vi * (B + C + ((1 / 3) * D))

'Beban Air'
Pairi = 0.5 * (L2 + L3 + L4) ^ 2 * Gw
PairHi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Pairi
PairVi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Pairi
MairHi = PairHi * (Hwt / 3)
MairVi = PairVi * (B + C + ((1 / 3) * D))

'Cohesi'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1i
C2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2i
C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
```



```
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 +
H4))
   Mc2Hi = C2Hi * ((H2 / 2) + (H3 + H4))
   Mc3Hi = C3Hi * ((H3 / 2) + H4)
   Mc4Hi = C4Hi * (H4 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi +
Ea5Vi + Ea6Vi + Ea7Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi +
Ea5Hi + Ea6Hi + Ea7Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi

End Sub
```

```
Sub Ba4()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * (L2 - Lw2) * Ka2
   Eq3 = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2)
* Lw2 * Ka2
   Eq4 = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2) * L3 * Ka3
   Eq5 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3) * L4 * Ka4
   Eq6 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * T2 *
Ka4
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq6
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq6
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + T2))
   Mq2H = Eq2H * (((H2 - Hw2) / 2) + (Hw2
+ H3 + H4 + T2))
   Mq3H = Eq3H * ((Hw2 / 2) + (H3 + H4 +
T2))
   Mq4H = Eq4H * ((H3 / 2) + (H4 + T2))
   Mq5H = Eq5H * ((H4 / 2) + T2)
   Mq6H = Eq6H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2a / 2))
   Mq3V = Eq3V * (A + B + C + (DM2 / 2))
   Mq4V = Eq4V * (A + B + C + (DM3 / 2))
```

```
Mq5V = Eq5V * (A + B + C + (D / 2))
Mq6V = Eq6V * (L)

'Beban Tanah'
Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
Ea2 = ((L1 * Gb1) * Ka2) * (L2 - Lw2)
Ea3 = 0.5 * (L2 - Lw2) ^ 2 * Gb2 * Ka2
Ea4 = ((L1 * Gb1 + (L2 - Lw2) * Gb2) *
Ka2) * Lw2
Ea5 = 0.5 * (Lw2) ^ 2 * Ga2 * Ka2
Ea6 = ((L1 * Gb1 + ((L2 - Lw2) * Gb2) +
Lw2 * Ga2) * Ka3) * L3
Ea7 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
Ea8 = ((L1 * Gb1 + ((L2 - Lw2) * Gb2) +
Lw2 * Ga2 + L3 * Ga3) * Ka4) * L4
Ea9 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
Ea10 = ((L1 * Gb1 + ((L2 - Lw2) * Gb2) +
Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka4) *
T2
Ea11 = 0.5 * (T2) ^ 2 * Ga4 * Ka4
Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
Ea6H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
Ea7H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
Ea10H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea10
Ea11H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea11
Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
Ea6V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
Ea7V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
Ea10V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea10
Ea11V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea11
Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ T2))
Ma2H = Ea2H * (((H2 - Hw2) / 2) + (Hw2
+ H3 + H4 + T2))
Ma3H = Ea3H * (((H2 - Hw2) / 3) + (Hw2
+ H3 + H4 + T2))
Ma4H = Ea4H * ((Hw2 / 2) + (H3 + H4 +
T2))
Ma5H = Ea5H * ((Hw2 / 3) + (H3 + H4 +
T2))
Ma6H = Ea6H * ((H3 / 2) + (H4 + T2))
Ma7H = Ea7H * ((H3 / 3) + (H4 + T2))
Ma8H = Ea8H * ((H4 / 2) + T2)
Ma9H = Ea9H * ((H4 / 3) + T2)
Ma10H = Ea10H * (T2 / 2)
Ma11H = Ea11H * (T2 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
Ma2V = Ea2V * (A + B + C + (DM2a / 2))
Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2a))
Ma4V = Ea4V * (A + B + C + (DM2 / 2))
Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM2))
Ma6V = Ea6V * (A + B + C + (DM3 / 2))
Ma7V = Ea7V * (A + B + C + ((1 / 3) *
DM3))
Ma8V = Ea8V * (A + B + C + (D / 2))
Ma9V = Ea9V * (A + B + C + ((1 / 3) * D))
Ma10V = Ea10V * (L)
Ma11V = Ea11V * (L)

'Beban Air'
Pair = 0.5 * ((L2 - Lw2) + L3 + L4 + T2) ^
2 * Gw
PairH = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pair
PairV = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pair
MairH = PairH * (Hwt / 3)
MairV = PairV * (L)

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
```

```
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = T2 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C5
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C5
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 + T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + T2))
   Mc4H = C4H * ((H4 / 2) + T2)
   Mc5H = C5H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (D / 2))
   Mc5V = C5V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H + Eq6H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V + Eq6V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H + Mq6H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V + Mq6V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V +
Ea10V + Ea11V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H +
Ea10H + Ea11H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H +
Ma5H + Ma6H + Ma7H + Ma8H + Ma9H +
Ma10H + Ma11H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V +
Ma5V + Ma6V + Ma7V + Ma8V + Ma9V +
Ma10V + Ma11V
   JCH = C1H + C2H + C3H + C4H + C5H
   JCV = C1V + C2V + C3V + C4V + C5V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Gb1) * (L2 - Lw2) * Ka1
   Eq3i = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2)
* Lw2 * Ka2
   Eq4i = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2
+ Lw2 * Ga2) * L3 * Ka3
   Eq5i = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2
+ Lw2 * Ga2 + L3 * Ga3) * L4 * Ka4
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq5Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq5Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5i
   Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 +
H4))
   Mq2Hi = Eq2Hi * (((H2 - Hw2) / 2) +
(Hw2 + H3 + H4))
   Mq3Hi = Eq3Hi * ((Hw2 / 2) + (H3 + H4))
   Mq4Hi = Eq4Hi * ((H3 / 2) + H4)
   Mq5Hi = Eq5Hi * (H4 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM2a / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM2 / 2))
   Mq4Vi = Eq4Vi * (B + C + (DM3 / 2))
```

```
Mq5Vi = Eq5Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
Ea2i = (L1 * Gb1) * Ka2 * (L2 - Lw2)
Ea3i = 0.5 * (L2 - Lw2) ^ 2 * Gb2 * Ka2
Ea4i = (L1 * Gb1 + (L2 - Lw2) * Gb2) *
Ka2 * Lw2
Ea5i = 0.5 * (Lw2) ^ 2 * Ga2 * Ka2
Ea6i = (L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2) * Ka3 * L3
Ea7i = 0.5 * (L3) ^ 2 * Ga3 * Ka3
Ea8i = (L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2 + L3 * Ga3) * Ka4 * L4
Ea9i = 0.5 * (L4) ^ 2 * Ga4 * Ka4
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
Ea5Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5i
Ea6Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
Ea7Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7i
Ea8Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
Ea9Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9i
Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
Ea5Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5i
Ea6Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
Ea7Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7i
Ea8Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
Ea9Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9i
Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 +
H4))
Ma2Hi = Ea2Hi * (((H2 - Hw2) / 2) + (Hw2
+ H3 + H4))
Ma3Hi = Ea3Hi * (((H2 - Hw2) / 3) +
(Hw2 + H3 + H4))
Ma4Hi = Ea4Hi * ((Hw2 / 2) + (H3 + H4))
Ma5Hi = Ea5Hi * ((Hw2 / 3) + (H3 + H4))
Ma6Hi = Ea6Hi * ((H3 / 2) + H4)
Ma7Hi = Ea7Hi * ((H3 / 3) + H4)
Ma8Hi = Ea8Hi * (H4 / 2)
Ma9Hi = Ea9Hi * (H4 / 3)
Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
Ma2Vi = Ea2Vi * (B + C + (DM2a / 2))
Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2a))
Ma4Vi = Ea4Vi * (B + C + (DM2 / 2))
Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM2))
Ma6Vi = Ea6Vi * (B + C + (DM3 / 2))
Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM3))
Ma8Vi = Ea8Vi * (B + C + (D / 2))
Ma9Vi = Ea9Vi * (B + C + ((1 / 3) * D))

'Beban Air'
Pairi = 0.5 * (Lw2 + L3 + L4) ^ 2 * Gw
PairHi    (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pairi
PairVi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pairi
MairHi = PairHi * (Hwt / 3)
MairVi = PairVi * (B + C + ((1 / 3) * D))

'Cohesi'
C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 +
H4))
Mc2Hi = C2Hi * ((H2 / 2) + (H3 + H4))
```

```
   Mc3Hi = C3Hi * ((H3 / 2) + H4)
   Mc4Hi = C4Hi * (H4 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi +
Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi +
Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
+ Ma9Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi

End Sub
Sub Ba5()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Gb2) * L3 *
Ka3
   Eq4 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3) * L4 * Ka4
   Eq5 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3 + L4 * Ga4) * T2 * Ka4
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + T2))
   Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mq3H = Eq3H * ((H3 / 2) + (H4 + T2))
   Mq4H = Eq4H * ((H4 / 2) + T2)
   Mq5H = Eq5H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (A + B + C + (DM3 / 2))
   Mq4V = Eq4V * (A + B + C + (D / 2))
   Mq5V = Eq5V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Gb2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Gb2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Gb1 + L2 * Gb2 + L3 * Ga3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea8 = ((L1 * Gb1 + L2 * Gb2 + L3 * Ga3 +
L4 * Ga4) * Ka4) * T2
   Ea9 = 0.5 * (T2) ^ 2 * Ga4 * Ka4
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
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```
22))) * Ea6
   Ea7H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 +
T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 +
T2))
   Ma4H = Ea4H * ((H3 / 2) + (H4 + T2))
   Ma5H = Ea5H * ((H3 / 3) + (H4 + T2))
   Ma6H = Ea6H * ((H4 / 2) + T2)
   Ma7H = Ea7H * ((H4 / 3) + T2)
   Ma8H = Ea8H * (T2 / 2)
   Ma9H = Ea9H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2))
   Ma4V = Ea4V * (A + B + C + (DM3 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM3))
   Ma6V = Ea6V * (A + B + C + (D / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) * D))
   Ma8V = Ea8V * (L)
   Ma9V = Ea9V * (L)

   'Beban Air'
   Pair = 0.5 * (L3 + L4 + T2) ^ 2 * Gw
   PairH = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = T2 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C5
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C5
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + T2))
   Mc4H = C4H * ((H4 / 2) + T2)
   Mc5H = C5H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (D / 2))
   Mc5V = C5V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
```

```
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V +
Ma5V + Ma6V + Ma7V + Ma8V + Ma9V
   JCH = C1H + C2H + C3H + C4H + C5H
   JCV = C1V + C2V + C3V + C4V + C5V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Gb1) * L2 * Ka2
   Eq3i = (Q + L1 * Gb1 + L2 * Gb2) * L3 *
Ka3
   Eq4i = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3) * L4 * Ka4
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4i
   Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 +
H4))
   Mq2Hi = Eq2Hi * ((H2 / 2) + (H3 + H4))
   Mq3Hi = Eq3Hi * ((H3 / 2) + H4)
   Mq4Hi = Eq4Hi * (H4 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
   Mq4Vi = Eq4Vi * (B + C + (D / 2))

   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2i = (L1 * Gb1) * Ka2 * L2
   Ea3i = 0.5 * L2 ^ 2 * Gb2 * Ka2
   Ea4i = (L1 * Gb1 + L2 * Gb2) * Ka3 * L3
   Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
   Ea6i = (L1 * Gb1 + L2 * Gb2 + L3 * Ga3)
* Ka4 * L4
   Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 +
H4))
   Ma2Hi = Ea2Hi * ((H2 / 2) + (H3 + H4))
   Ma3Hi = Ea3Hi * ((H2 / 3) + (H3 + H4))
   Ma4Hi = Ea4Hi * ((H3 / 2) + H4)
   Ma5Hi = Ea5Hi * ((H3 / 3) + H4)
   Ma6Hi = Ea6Hi * (H4 / 2)
   Ma7Hi = Ea7Hi * (H4 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
   Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
   Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM3))
   Ma6Vi = Ea6Vi * (B + C + (D / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) * D))

   'Beban Air'
```

```
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi

   EaVi = (JEqVi + JEaVi) - JCVi
   Eai = (JEqHi + JEaHi) - JCHi
   MaVi = (JMqVi + JMaVi) - JMCVi
   Mai = (JMqHi + JMaHi) - JMCHi

End Sub
Sub Basah()
On Error Resume Next
   Hw1 = H1 - (Ht - Hwt)
   Hw2 = H2 - (Ht - Hwt - H1)
   Hw3 = H3 - (Ht - Hwt - H1 - H2)
   Hw4 = H4 - (Ht - Hwt - H1 - H2 - H3)
   DM1a = ((Hw1 * D) / T1)
   DM2a = ((Hw2 * D) / T1)
   DM3a = ((Hw3 * D) / T1)
   da = ((Hw4 * D) / T1)
   Lw1 = ((Hw1) / (Abs(Cos(lamda * (180 * 7
/ 22)))))
   Lw2 = ((Hw2) / (Abs(Cos(lamda * (180 * 7
/ 22)))))
   Lw3 = ((Hw3) / (Abs(Cos(lamda * (180 * 7
/ 22)))))
   Lw4 = ((Hw4) / (Abs(Cos(lamda * (180 * 7
/ 22)))))

   'Tekanan Pasif'
   Epp = 0.5 * (T2) ^ 2 * Ga4 * Kp
   Cp = T2 * 2 * Ch4 * ((Kp) ^ 0.5)
   Ppair = 0.5 * (T2) ^ 2 * Gw
   Mep = Ep * (T2 / 3)
   Mcp = Cp * (T2 / 2)
   Mpair = Ppair * (T2 / 3)
   Mpp = Mep + Mcp + Mair
   Ep = Epp + Cp + Ppair

   If Hwt = Ht Then Ba1
   If Hwt < Ht And (H2 + H3 + H4 + T2) <
Hwt Then Ba2
   If Hwt = (H2 + H3 + H4 + T2) And Ht >
Hwt Then Ba3
   If Hwt < (H2 + H3 + H4 + T2) And (H3 +
H4 + T2) < Hwt Then Ba4
   If Hwt = (H3 + H4 + T2) And (H2 + H3 +
H4 + T2) > Hwt Then Ba5
   If Hwt < (H3 + H4 + T2) And (H4 + T2) <
Hwt Then Ba6
   If Hwt = (H4 + T2) And (H3 + H4 + T2) >
Hwt Then Ba7
   If Hwt < (H4 + T2) And T2 < Hwt Then
Ba8
   If Hwt = T2 And (H3 + T2) > Hwt Then
Ba9
   If Hwt < T2 And (H3 + T2) > Hwt Then
Ba10
End Sub
Sub Gammatnh()
On Error Resume Next
Do While xx <> 0
MDIForm1.StatusBar1.Panels("koko").Text =
"Data berat volume tanah"
   H1 = Text3.Text
   H2 = Text7.Text
   H3 = Text11.Text
   H4 = Text15.Text
   If Option1.Value = True Then GoTo
BBasah
   If Option2.Value = True Then GoTo
KKering
BBasah:
      If Ht = Hwt Then
         pesan1 = "Berat Volume Tanah
Terendam Lapis 1="
         pesan2 = "Berat Volume Tanah
Terendam Lapis 2="
         pesan3 = "Berat Volume Tanah
Terendam Lapis 3="
         pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
         Ga1 = InputBox(pesan1, "Gamma
Aksen")
         Ga2 = InputBox(pesan2, "Gamma
Aksen")
         Ga3 = InputBox(pesan3, "Gamma
Aksen")
         Ga4 = InputBox(pesan4, "Gamma
Aksen")
      ElseIf Hwt > (H2 + H3 + H4) And Ht >
Hwt Then
         pesan1 = "Berat Volume Tanah Basah
Lapis 1="
         pesan2 = "Berat Volume Tanah
Terendam Lapis 1="
         pesan3 = "Berat Volume Tanah
Terendam Lapis 2="
         pesan4 = "Berat Volume Tanah
Terendam Lapis 3="
         pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
         Gb1 = InputBox(pesan1, "Gamma
Basah")
         Ga1 = InputBox(pesan2, "Gamma
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Aksen")
        Ga2 = InputBox(pesan3, "Gamma
Aksen")
        Ga3 = InputBox(pesan4, "Gamma
Aksen")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf Hwt = (H2 + H3 + H4) And Ht >
Hwt Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah
Terendam Lapis 2="
        pesan3 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Ga2 = InputBox(pesan2, "Gamma
Aksen")
        Ga3 = InputBox(pesan3, "Gamma
Aksen")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
    ElseIf Hwt < (H3 + H4) And Ht > Hwt
Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah
Terendam Lapis 2="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Ga2 = InputBox(pesan3, "Gamma
Aksen")
        Ga3 = InputBox(pesan4, "Gamma
Aksen")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf Hwt = (H3 + H4) Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Ga3 = InputBox(pesan3, "Gamma
Aksen")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
    ElseIf Hwt > (H4) And (H3 + H4) > Hwt
Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Ga3 = InputBox(pesan4, "Gamma
Aksen")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf (H4) = Hwt And Hwt < (H3 + H4)
Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
    ElseIf Hwt < (H4) Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
```

```
Lapis 3="
        pesan4 = "Berat Volume Tanah Basah
Lapis 4="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Gb4 = InputBox(pesan4, "Gamma
Basah")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
    End If
        xx = 0
     Exit Sub
KKering:
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah Basah
Lapis 4="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Gb4 = InputBox(pesan4, "Gamma
Basah")
        xx = 0
Loop
MDIForm1.StatusBar1.Panels("koko").Text =
"Proses Optimasi ....."
End Sub
```

```
Sub Parameter()
On Error Resume Next
    Q = Q.Text
    T1 = T1.Text
    gpas = gpas.Text
    Phi1 = Text1.Text
    Ch1 = Text2.Text
    H1 = Text3.Text
    Delta1 = Text4.Text
    Phi2 = Text5.Text
    Ch2 = Text6.Text
    H2 = Text7.Text
    Delta2 = Text8.Text
    Phi3 = Text9.Text
    Ch3 = Text10.Text
    H3 = Text11.Text
    Delta3 = Text12.Text
    Phi4 = Text13.Text
    Ch4 = Text14.Text
    H4 = Text15.Text
    Delta4 = Text16.Text
    Hwt = Hwt.Text
    alfa = (Atn(T1 / D)) * (180 * (7 / 22))
    lamda = (180 - (90 + alfa))
    L = (A + B + C + D + E)
    Lt = ((T1 ^ 2) + (D ^ 2)) ^ (0.5)
    Ht = T1 + T2
    L1 = (H1 / (Cos(lamda / (180 * 7 / 22))))
    L2 = (H2 / (Cos(lamda / (180 * 7 / 22))))
    L3 = (H3 / (Cos(lamda / (180 * 7 / 22))))
    L4 = (H4 / (Cos(lamda / (180 * 7 / 22))))
    DM1 = ((H1 * D) / T1)
    DM2 = (H2 * D) / T1
    DM3 = (H3 * D) / T1
    Ka1 = ((Sin((alfa + Phi1) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta1) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi1 + Delta1) / (180 * 7 / 22))) *
(Sin(Phi1 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta1) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
    Ka2 = ((Sin((alfa + Phi2) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta2) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi2 + Delta2) / (180 * 7 / 22))) *
(Sin(Phi2 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta2) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
    Ka3 = ((Sin((alfa + Phi3) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta3) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi3 + Delta3) / (180 * 7 / 22))) *
(Sin(Phi3 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta3) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
```

```
   Ka4 = ((Sin((alfa + Phi4) / (180 * 7 / 22))) ^
2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta4) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi4 + Delta4) / (180 * 7 / 22))) *
(Sin(Phi4 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta4) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
   Kp = ((Sin((alfa - Phi3) / (180 * 7 / 22))) ^
2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa + Delta3) / (180 * 7 / 22)))) * (1 -
((((Sin((Phi3 + Delta3) / (180 * 7 / 22))) *
(Sin(Phi3 / (180 * 7 / 22)))) / ((Sin((alfa +
Delta3) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
End Sub
Sub Kering()
On Error Resume Next
QQ = Q
   'Takanan Pasif'
   Epp = 0.5 * (T2) ^ 2 * Gb4 * Kp
   Cp = T2 * 2 * Ch4 * ((Kp) ^ 0.5)
   Mep = Epp * (T2 / 3)
   Mcp = Cp * (T2 / 2)
   Mpp = Mep + Mcp
   Ep = Epp + Cp

   'Gaya Eksternal'
   'Beban Merata Q'
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Gb2) * L3 *
Ka3
   Eq4 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Gb3) * L4 * Ka4
   Eq5 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Gb3 + L4 * Gb4) * T2 * Ka4
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + T2))
   Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mq3H = Eq3H * ((H3 / 2) + (H4 + T2))
   Mq4H = Eq4H * ((H4 / 2) + T2)
   Mq5H = Eq5H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (A + B + C + (DM3 / 2))
   Mq4V = Eq4V * (A + B + C + (D / 2))
   Mq5V = Eq5V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Gb2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Gb2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Gb3 * Ka3
   Ea6 = ((L1 * Gb1 + L2 * Gb2 + L3 * Gb3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Gb4 * Ka4
   Ea8 = ((L1 * Gb1 + L2 * Gb2 + L3 * Gb3
+ L4 * Gb4) * Ka4) * (T2)
   Ea9 = 0.5 * (T2) ^ 2 * Gb4 * Ka4
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
```

```
22))) * Eq3
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 +
T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 +
T2))
   Ma4H = Ea4H * ((H3 / 2) + (H4 + T2))
   Ma5H = Ea5H * ((H3 / 3) + (H4 + T2))
   Ma6H = Ea6H * ((H4 / 2) + T2)
   Ma7H = Ea7H * ((H4 / 3) + T2)
   Ma8H = Ea8H * (T2 / 2)
   Ma9H = Ea9H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 * 3) *
DM2))
   Ma4V = Ea4V * (A + B + C + (DM3 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM3))
   Ma6V = Ea6V * (A + B + C + (D / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) * D))
   Ma8V = Ea8V * (L)
   Ma9V = Ea9V * (L)
   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = T2 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C5
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22)))
* C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C5
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 +
T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + T2))
   Mc4H = C4H * ((H4 / 2) + T2)
   Mc5H = C5H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (D / 2))
   Mc5V = C5V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V + Ma6V + Ma7V + Ma8V + Ma9V
   JCH = C1H + C2H + C3H + C4H + C5H
   JCV = C1V + C2V + C3V + C4V + C5V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V

   EaV = (JEqV + JEaV) - JCV
   Ea = (JEqH + JEaH) - JCH
   MaV = (JMqV + JMaV) - JMCV
   Ma = (JMqH + JMaH) - JMCH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Ga1) * L2 * Ka2
   Eq3i = (Q + L1 * Ga1 + L2 * Ga2) * L3 *
Ka3
   Eq4i = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
```

```
Ga3) * L4 * Ka4
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4i
   Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 +
H4))
   Mq2Hi = Eq2Hi * ((H2 / 2) + (H3 + H4))
   Mq3Hi = Eq3Hi * ((H3 / 2) + H4)
   Mq4Hi = Eq4Hi * (H4 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
   Mq4Vi = Eq4Vi * (B + C + (D / 2))

   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
   Ea2i = (L1 * Ga1) * Ka2 * L2
   Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
   Ea4i = (L1 * Ga1 + L2 * Ga2) * Ka3 * L3
   Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
   Ea6i = (L1 * Ga1 + L2 * Ga2 + L3 * Ga3)
* Ka4 * L4
   Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 +
H4))
   Ma2Hi = Ea2Hi * ((H2 / 2) + (H3 + H4))
   Ma3Hi = Ea3Hi * ((H2 / 3) + (H3 + H4))
   Ma4Hi = Ea4Hi * ((H3 / 2) + H4)
   Ma5Hi = Ea5Hi * ((H3 / 3) + H4)
   Ma6Hi = Ea6Hi * (H4 / 2)
   Ma7Hi = Ea7Hi * (H4 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
   Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
   Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM3))
   Ma6Vi = Ea6Vi * (B + C + (D / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 +
H4))
   Mc2Hi = C2Hi * ((H2 / 2) + (H3 + H4))
   Mc3Hi = C3Hi * ((H3 / 2) + H4)
```

```
    Mc4Hi = C4Hi * (H4 / 2)
    Mc1Vi = C1Vi * (B + C + (DM1 / 2))
    Mc2Vi = C2Vi * (B + C + (DM2 / 2))
    Mc3Vi = C3Vi * (B + C + (DM3 / 2))
    Mc4Vi = C4Vi * (B + C + (D / 2))
    JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
    JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
    JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi
    JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi
    JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi +
Ea5Vi + Ea6Vi + Ea7Vi
    JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi +
Ea5Hi + Ea6Hi + Ea7Hi
    JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi
    JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi
    JCHi = C1Hi + C2Hi + C3Hi + C4Hi
    JCVi = C1Vi + C2Vi + C3Vi + C4Vi
    JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi
    JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi


    EaVi = (JEqVi + JEaVi) - JCVi
    Eai = (JEqHi + JEaHi) - JCHi
    MaVi = (JMqVi + JMaVi) - JMCVi
    Mai = (JMqHi + JMaHi) - JMCHi

End Sub
```

Lapis 5

```
Sub Ba1()
    'Gaya Eksternal'
    'Beban Merata Q'
    QQ = Q
    Do While QQ <> 0
    Eq1 = (Q * L1) * Ka1
    Eq2 = (Q + L1 * Ga1) * L2 * Ka2
    Eq3 = (Q + L1 * Ga1 + L2 * Ga2) * L3 *
Ka3
    Eq4 = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
Ga3) * L4 * Ka4
    Eq5 = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
Ga3 + L4 * Ga4) * L5 * Ka5
    Eq6 = (Q + L1 * Ga1 + L2 * Ga2 + L3 *
Ga3 + L4 * Ga4 + (L5) * Ga5) * T2 * Ka5
    QQ = 0
    Loop
    Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
    Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
    Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
    Eq5H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq5
    Eq6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
    Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
    Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
    Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
    Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
    Eq5V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq5
    Eq6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
    Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + H5 + T2))
    Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 +
H5 + T2))
    Mq3H = Eq3H * ((H3 / 2) + (H4 + H5 +
T2))
    Mq4H = Eq4H * ((H4 / 2) + (H5 + T2))
    Mq5H = Eq5H * ((H5 / 2) + T2)
    Mq6H = Eq6H * (T2 / 2)
    Mq1V = Eq1V * (A + B + C + (DM1 / 2))
    Mq2V = Eq2V * (A + B + C + (DM2 / 2))
    Mq3V = Eq3V * (A + B + C + (DM3 / 2))
    Mq4V = Eq4V * (A + B + C + (DM4 / 2))
```

```
Mq5V = Eq5V * (A + B + C + (D / 2))
   Mq6V = Eq6V * (L)
   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Ga1 * Ka1
   Ea2 = ((L1 * Ga1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = ((L1 * Ga1 + L2 * Ga2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Ga1 + L2 * Ga2 + L3 * Ga3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea8 = ((L1 * Ga1 + L2 * Ga2 + L3 * Ga3 +
L4 * Ga4) * Ka5) * (L5)
   Ea9 = 0.5 * (L5) ^ 2 * Ga5 * Ka5
   Ea10 = ((L1 * Ga1 + L2 * Ga2 + L3 * Ga3
+ L4 * Ga4 + (L5) * Ga5) * Ka5) * T2
   Ea11 = 0.5 * (T2) ^ 2 * Ga5 * Ka5
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ H5 + T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 + H5
+ T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 + H5
+ T2))
   Ma4H = Ea4H * ((H3 / 2) + (H4 + H5 +
T2))
   Ma5H = Ea5H * ((H3 / 3) + (H4 + H5 +
T2))
   Ma6H = Ea6H * ((H4 / 2) + (H5 + T2))
   Ma7H = Ea7H * ((H4 / 3) + (H5 + T2))
   Ma8H = Ea8H * ((H5 / 2) + T2)
   Ma9H = Ea9H * ((H5 / 3) + T2)
   Ma10H = Ea10H * (T2 / 2)
   Ma11H = Ea11H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2))
   Ma4V = Ea4V * (A + B + C + (DM3 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM3))
   Ma6V = Ea6V * (A + B + C + (DM4 / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) *
DM4))
   Ma8V = Ea8V * (A + B + C + (D / 2))
   Ma9V = Ea9V * (A + B + C + ((1 / 3) * D))
   Ma10V = Ea10V * (L)
   Ma11V = Ea11V * (L)

   'Beban Air'
   Pair = 0.5 * (L1 + L2 + L3 + L4 + L5 + T2)
^ 2 * Gw
   PairH = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
```

```
C6 = T2 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * C4
   C5H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * C5
   C6H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * C6
   C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * C4
   C5V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * C5
   C6V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * C6
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4 + H5 + T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 + H5 + T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + H5 + T2))
   Mc4H = C4H * ((H4 / 2) + (H5 + T2))
   Mc5H = C5H * ((H5 / 2) + T2)
   Mc6H = C6H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (DM4 / 2))
   Mc5V = C5V * (A + B + C + (D / 2))
   Mc6V = C6V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H + Eq5H + Eq6H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V + Eq5V + Eq6V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H + Mq5H + Mq6H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V + Mq5V + Mq6V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V + Ea5V + Ea6V + Ea7V + Ea8V + Ea9V + Ea10V + Ea11V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H + Ea5H + Ea6H + Ea7H + Ea8H + Ea9H + Ea10H + Ea11H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H + Ma5H + Ma6H + Ma7H + Ma8H + Ma9H + Ma10H + Ma11H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V + Ma5V + Ma6V + Ma7V + Ma8V + Ma9V + Ma10V + Ma11V
   JCH = C1H + C2H + C3H + C4H + C5H + C6H
   JCV = C1V + C2V + C3V + C4V + C5V + C6V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H + Mc5H + Mc6H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V + Mc5V + Mc6V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Ga1) * L2 * Ka2
   Eq3i = (Q + L1 * Ga1 + L2 * Ga2) * L3 * Ka3
   Eq4i = (Q + L1 * Ga1 + L2 * Ga2 + L3 * Ga3) * L4 * Ka4
   Eq5i = (Q + L1 * Ga1 + L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * L5 * Ka5
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
   Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
   Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
   Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
   Eq5Hi = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * Eq5i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
   Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
   Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
   Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
   Eq5Vi = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Eq5i
   Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 + H4 + H5))
```

```
   Mq2Hi = Eq2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Mq3Hi = Eq3Hi * ((H3 / 2) + H4 + H5)
   Mq4Hi = Eq4Hi * ((H4 / 2) + H5)
   Mq5Hi = Eq5Hi * (H5 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
   Mq4Vi = Eq4Vi * (B + C + (DM4 / 2))
   Mq5Vi = Eq5Vi * (B + C + (D / 2))

   'Gaya Internal'
   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
   Ea2i = (L1 * Ga1) * Ka2 * L2
   Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
   Ea4i = (L1 * Ga1 + L2 * Ga2) * Ka3 * L3
   Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
   Ea6i = (L1 * Ga1 + L2 * Ga2 + L3 * Ga3)
* Ka4 * L4
   Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
   Ea8i = (L1 * Ga1 + L2 * Ga2 + L3 * Ga3 +
L4 * Ga4) * Ka5 * L5
   Ea9i = 0.5 * L5 ^ 2 * Ga5 * Ka5
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 +
H4 + H5))
   Ma2Hi = Ea2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Ma3Hi = Ea3Hi * ((H2 / 3) + H3 + H4 +
H5)
   Ma4Hi = Ea4Hi * ((H3 / 2) + H4 + H5)
   Ma5Hi = Ea5Hi * ((H3 / 3) + H4 + H5)
   Ma6Hi = Ea6Hi * ((H4 / 2) + H5)
   Ma7Hi = Ea7Hi * ((H4 / 3) + H5)
   Ma8Hi = Ea8Hi * (H5 / 2)
   Ma9Hi = Ea9Hi * (H5 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
   Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
   Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM3))
   Ma6Vi = Ea6Vi * (B + C + (DM4 / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM4))
   Ma8Vi = Ea8Vi * (B + C + (D / 2))
   Ma9Vi = Ea9Vi * (B + C + ((1 / 3) * D))

   'Beban Air'
   Pairi = 0.5 * (L1 + L2 + L3 + L4 + L5) ^ 2
* Gw
   PairHi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5i = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
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```
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
   C5Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 + H4
+ H5))
   Mc2Hi = C2Hi * ((H2 / 2) + H3 + H4 + H5)
   Mc3Hi = C3Hi * ((H3 / 2) + H4 + H5)
   Mc4Hi = C4Hi * ((H4 / 2) + H5)
   Mc5Hi = C5Hi * (H5 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (DM4 / 2))
   Mc5Vi = C5Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi +
Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi +
Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
+ Ma9Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi +
C5Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi +
C5Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi + Mc5Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi + Mc5Vi



   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi +
MairHi

End Sub
Sub Ba2()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = Q * (L1 - Lw1) * Ka1
   Eq2 = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
   Eq3 = (Q + (L1 - Lw1) * Gb1 + Lw1 *
Ga1) * L2 * Ka2
   Eq4 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2) * L3 * Ka3
   Eq5 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3) * L4 * Ka4
   Eq6 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * L5 *
Ka5
   Eq7 = (Q + (L1 - Lw1) * Gb1 + Lw1 * Ga1
+ L2 * Ga2 + L3 * Ga3 + L4 * Ga4 + L5 *
Ga5) * T2 * Ka5
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Eq7H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq7
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Eq7V = (Sin((Delta5 + lamda) / (180 * 7 /
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22))) * Eq7
   Mq1H = Eq1H * (((H1 - Hw1) / 2) + (Hw1
+ H2 + H3 + H4 + H5 + T2))
   Mq2H = Eq2H * ((Hw1 / 2) + (H2 + H3 +
H4 + H5 + T2))
   Mq3H = Eq3H * ((H2 / 2) + (H3 + H4 + H5
+ T2))
   Mq4H = Eq4H * ((H3 / 2) + (H4 + H5 +
T2))
   Mq5H = Eq5H * ((H4 / 2) + (H5 + T2))
   Mq6H = Eq6H * ((H5 / 2) + T2)
   Mq7H = Eq7H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1a / 2))
   Mq2V = Eq2V * (A + B + C + (DM1 / 2))
   Mq3V = Eq3V * (A + B + C + (DM2 / 2))
   Mq4V = Eq4V * (A + B + C + (DM3 / 2))
   Mq5V = Eq5V * (A + B + C + (DM4 / 2))
   Mq6V = Eq6V * (A + B + C + (D / 2))
   Mq7V = Eq7V * (L)
   'Beban Tanah'
   Ea1 = 0.5 * (L1 - Lw1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 - Lw1) * Gb1 * Ka1) * Lw1
   Ea3 = 0.5 * (Lw1) ^ 2 * Ga1 * Ka1
   Ea4 = (((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2) * L2
   Ea5 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea6 = (((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3) * L3
   Ea7 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea8 = (((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3) * Ka4) * L4
   Ea9 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea10 = (((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka5) *
L5
   Ea11 = 0.5 * (L5) ^ 2 * Ga5 * Ka5
   Ea12 = (((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3 + L4 * Ga4 + L5 * Ga5)
* Ka5) * T2
   Ea13 = 0.5 * (T2) ^ 2 * Ga5 * Ka5
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ea12H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea12
   Ea13H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea13
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ea12V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea12
   Ea13V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea13
   Ma1H = Ea1H * (((H1 - Hw1) / 3) + (Hw1
+ H2 + H3 + H4 + H5 + T2))
   Ma2H = Ea2H * ((Hw1 / 2) + (H2 + H3 +
H4 + H5 + T2))
   Ma3H = Ea3H * ((Hw1 / 3) + (H2 + H3 +
H4 + H5 + T2))
   Ma4H = Ea4H * ((H2 / 2) + (H3 + H4 + H5
+ T2))
   Ma5H = Ea5H * ((H2 / 3) + (H3 + H4 + H5
+ T2))
   Ma6H = Ea6H * ((H3 / 2) + (H4 + H5 +
T2))
   Ma7H = Ea7H * ((H3 / 3) + (H4 + H5 +
T2))
   Ma8H = Ea8H * ((H4 / 2) + (H5 + T2))
   Ma9H = Ea9H * ((H4 / 3) + (H5 + T2))
   Ma10H = Ea10H * ((H5 / 2) + T2)
```

```
   Ma11H = Ea11H * ((H5 / 3) + T2)
   Ma12H = Ea12H * (T2 / 2)
   Ma13H = Ea13H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1a))
   Ma2V = Ea2V * (A + B + C + (DM1 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM1))
   Ma4V = Ea4V * (A + B + C + (DM2 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM2))
   Ma6V = Ea6V * (A + B + C + (DM3 / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) *
DM3))
   Ma8V = Ea8V * (A + B + C + (DM4 / 2))
   Ma9V = Ea9V * (A + B + C + ((1 / 3) *
DM4))
   Ma10V = Ea10V * (A + B + C + (D / 2))
   Ma11V = Ea11V * (A + B + C + ((1 / 3) *
D))
   Mu12V    Ea12V * (L)
   Ma13V = Ea13V * (L)

   'Beban Air'
   Pair = 0.5 * (Lw1 + L2 + L3 + L4 + L5 +
T2) ^ 2 * Gw
   PairH = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C6 = T2 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5
   C6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C6
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5
   C6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C6
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ H5 + T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 + H5
+ T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + H5 +
T2))
   Mc4H = C4H * ((H4 / 2) + (H5 + T2))
   Mc5H = C5H * ((H5 / 2) + T2)
   Mc6H = C6H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (DM4 / 2))
   Mc5V = C5V * (A + B + C + (D / 2))
   Mc6V = C6V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H + Eq6H + Eq7H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V + Eq6V + Eq7V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H + Mq6H + Mq7H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V + Mq6V + Mq7V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V +
Ea10V + Ea11V + Ea12V + Ea13V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H +
Ea10H + Ea11H + Ea12H + Ea13H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H +
Ma10H + Ma11H + Ea12H + Ea13H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V + Ma6V + Ma7V + Ma8V + Ma9V +
Ma10V + Ma11V + Ea12V + Ea13V
   JCH = C1H + C2H + C3H + C4H + C5H +
C6H
   JCV = C1V + C2V + C3V + C4V + C5V +
C6V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H + Mc6H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V + Mc6V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
```

```
MaV = (JMqV + JMaV) - JMCV + MairV
  Ma = (JMqH + JMaH) - JMCH + MairH

  'Gaya Internal'
  'Beban Merata Q'
  QQ = Q
  Do While QQ <> 0
  Eq1i = (Q * L1) * Ka1
  Eq2i = (Q + (L1 - Lw1) * Gb1) * Lw1 *
Ka1
  Eq3i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1) * L2 * Ka2
  Eq4i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1 + L2 * Ga2) * L3 * Ka3
  Eq5i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1 + L2 * Ga2 + L3 * Ga3) * L4 * Ka4
  Eq6i = (Q + ((L1 - Lw1) * Gb1) + Lw1 *
Ga1 + L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * L5
* Ka5
  QQ = 0
  Loop
  Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
  Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
  Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
  Eq4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
  Eq5Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5i
  Eq6Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq6i
  Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
  Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq2i
  Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3i
  Eq4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4i
  Eq5Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5i
  Eq6Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq6i
  Mq1Hi = Eq1Hi * (((H1 - Hw1) / 2) +
(Hw1 + H2 + H3 + H4 + H5))
  Mq2Hi = Eq2Hi * ((Hw1 / 2) + (H2 + H3 +
H4 + H5))
  Mq3Hi = Eq3Hi * ((H2 / 2) + H3 + H4 +
H5)
  Mq4Hi = Eq4Hi * ((H3 / 2) + H4 + H5)
  Mq5Hi = Eq5Hi * ((H4 / 2) + H5)
  Mq6Hi = Eq6Hi * (H5 / 2)
  Mq2Vi = Eq2Vi * (B + C + (DM1 / 2))
  Mq3Vi = Eq3Vi * (B + C + (DM2 / 2))
  Mq4Vi = Eq4Vi * (B + C + (DM3 / 2))
  Mq5Vi = Eq5Vi * (B + C + (DM4 / 2))
  Mq6Vi = Eq6Vi * (B + C + (D / 2))

  'Beban Tanah'
  Ea1i = 0.5 * L1 ^ 2 * Ga1 * Ka1
  Ea2i = ((L1 - Lw1) * Gb1) * Ka1 * Lw1
  Ea3i = 0.5 * (Lw1) ^ 2 * Ga2 * Ka2
  Ea4i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1) *
Ka2 * L2
  Ea5i = 0.5 * L2 ^ 2 * Ga3 * Ka3
  Ea6i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2) * Ka3 * L3
  Ea7i = 0.5 * L3 ^ 2 * Ga4 * Ka4
  Ea8i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3) * Ka4 * L4
  Ea9i = 0.5 * L4 ^ 2 * Ga5 * Ka5
  Ea10i = ((L1 - Lw1) * Gb1 + Lw1 * Ga1 +
L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka5 * L5
  Ea11i = 0.5 * L5 ^ 2 * Ga5 * Ka5
  Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
  Ea2Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
  Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
  Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
  Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
  Ea6Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
  Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
  Ea8Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
  Ea9Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
  Ea10Hi = (Cos((Delta5 + lamda) / (180 * 7
/ 22))) * Ea10i
  Ea11Hi = (Cos((Delta5 + lamda) / (180 * 7
/ 22))) * Ea11i
  Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
  Ea2Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea2i
  Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
  Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
  Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
```

```
   Mq1Vi = Eq1Vi * (B + C + (DM1a / 2))
   Ea6Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea10Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea10i
   Ea11Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea11i
   Ma1Hi = Ea1Hi * (((H1 - Hw1) / 3) + (Hw1
+ H2 + H3 + H4 + H5))
   Ma2Hi = Ea2Hi * ((Hw1 / 2) + (H2 + H3 +
H4 + H5))
   Ma3Hi = Ea3Hi * ((Hw1 / 3) + (H2 + H3 +
H4 + H5))
   Ma4Hi = Ea4Hi * ((H2 / 2) + H3 + H4 +
H5)
   Ma5Hi = Ea5Hi * ((H2 / 3) + H3 + H4 +
H5)
   Ma6Hi = Ea6Hi * ((H3 / 2) + H4 + H5)
   Ma7Hi = Ea7Hi * ((H3 / 3) + H4 + H5)
   Ma8Hi = Ea8Hi * ((H4 / 2) + H5)
   Ma9Hi = Ea9Hi * ((H4 / 3) + H5)
   Ma10Hi = Ea10Hi * (H5 / 2)
   Ma11Hi = Ea11Hi * (H5 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1a))
   Ma2Vi = Ea2Vi * (B + C + (DM1 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM1))
   Ma4Vi = Ea4Vi * (B + C + (DM2 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM2))
   Ma6Vi = Ea6Vi * (B + C + (DM3 / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM3))
   Ma8Vi = Ea8Vi * (B + C + (DM4 / 2))
   Ma9Vi = Ea9Vi * (B + C + ((1 / 3) *
DM4))
   Ma10Vi = Ea10Vi * (B + C + (D / 2))
   Ma11Vi = Ea11Vi * (B + C + ((1 / 3) * D))

   'Beban Air'
   Pairi = 0.5 * (Lw1 + L2 + L3 + L4 + L5) ^
2 * Gw
   PairHi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5i = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 +
H4 + H5))
   Mc2Hi = C2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Mc3Hi = C3Hi * ((H3 / 2) + H4 + H5)
   Mc4Hi = C4Hi * ((H4 / 2) + H5)
   Mc5Hi = C5Hi * (H5 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (DM4 / 2))
   Mc5Vi = C5Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi + Eq6Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi + Eq6Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi + Mq6Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi + Mq6Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi +
Ea10Vi + Ea11Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi +
Ea10Hi + Ea11Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
```

```
+ Ma9Hi + Ma10Hi + Ma11Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi + Ma10Vi + Ma11Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi +
C5Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi +
C5Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi + Mc5Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi + Mc5Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi
End Sub
Sub Ba3()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Ga2) * L3 *
Ka3
   Eq4 = (Q + L1 * Gb1 + L2 * Ga2 + L3 *
Ga3) * L4 * Ka4
   Eq5 = (Q + L1 * Gb1 + L2 * Ga2 + L3 *
Ga3 + L4 * Ga4) * L5 * Ka5
   Eq6 = (Q + L1 * Gb1 + L2 * Ga2 + L3 *
Ga3 + L4 * Ga4 + L5 * Ga5) * T2 * Ka5
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + H5 + T2))
   Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 +
H5 + T2))
   Mq3H = Eq3H * ((H3 / 2) + (H4 + H5 +
T2))
   Mq4H = Eq4H * ((H4 / 2) + (H5 + T2))
   Mq5H = Eq5H * ((H5 / 2) + T2)
   Mq6H = Eq6H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (A + B + C + (DM3 / 2))
   Mq4V = Eq4V * (A + B + C + (DM4 / 2))
   Mq5V = Eq5V * (A + B + C + (D / 2))
   Mq6V = Eq6V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Ga2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Ga2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Gb1 + L2 * Ga2 + L3 * Ga3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea8 = ((L1 * Gb1 + L2 * Ga2 + L3 * Ga3 +
L4 * Ga4) * Ka5) * L5
   Ea9 = 0.5 * (L5) ^ 2 * Ga5 * Ka5
   Ea10 = ((L1 * Gb1 + L2 * Ga2 + L3 * Ga3
+ L4 * Ga4 + (L5) * Ga5) * Ka5) * T2
   Ea11 = 0.5 * (T2) ^ 2 * Ga5 * Ka5
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9
```

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Ea10H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * Ea10
Ea11H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * Ea11
Ea1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Ea1
Ea2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea2
Ea3V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Ea3
Ea4V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea4
Ea5V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Ea5
Ea6V = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Ea6
Ea7V = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Ea7
Ea8V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Ea8
Ea9V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Ea9
Ea10V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Ea10
Ea11V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Ea11
Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4 + H5 + T2))
Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 + H5 + T2))
Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 + H5 + T2))
Ma4H = Ea4H * ((H3 / 2) + (H4 + H5 + T2))
Ma5H = Ea5H * ((H3 / 3) + (H4 + H5 + T2))
Ma6H = Ea6H * ((H4 / 2) + (H5 + T2))
Ma7H = Ea7H * ((H4 / 3) + (H5 + T2))
Ma8H = Ea8H * ((H5 / 2) + T2)
Ma9H = Ea9H * ((H5 / 3) + T2)
Ma10H = Ea10H * (T2 / 2)
Ma11H = Ea11H * (T2 / 3)
Ma1V = Ea1V * (A + B + C + ((1 / 3) * DM1))
Ma2V = Ea2V * (A + B + C + (DM2 / 2))
Ma3V = Ea3V * (A + B + C + ((1 / 3) * DM2))
Ma4V = Ea4V * (A + B + C + (DM3 / 2))
Ma5V = Ea5V * (A + B + C + ((1 / 3) * DM3))
Ma6V = Ea6V * (A + B + C + (DM4 / 2))
Ma7V = Ea7V * (A + B + C + ((1 / 3) * DM4))
Ma8V = Ea8V * (A + B + C + (D / 2))
Ma10V = Ea10V * (L)
Ma11V = Ea11V * (L)

'Beban Air'
Pair = 0.5 * (L2 + L3 + L4 + L5 + T2) ^ 2 * Gw
PairH = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * Pair
PairV = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Pair
MairH = PairH * (Hwt / 3)
MairV = PairV * (L)

'Cohesi Tanah'
C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
C5 = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
C6 = T2 * 2 * Ch5 * ((Ka5) ^ 0.5)
C1H = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C3
C4H = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * C4
C5H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * C5
C6H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * C6
C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C3
C4V = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * C4
C5V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * C5
C6V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * C6
Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4 + H5 + T2))
Mc2H = C2H * ((H2 / 2) + (H3 + H4 + H5 + T2))
Mc3H = C3H * ((H3 / 2) + (H4 + H5 + T2))
Mc4H = C4H * ((H4 / 2) + (H5 + T2))
Mc5H = C5H * ((H5 / 2) + T2)
Mc6H = C6H * (T2 / 2)
Mc1V = C1V * (A + B + C + (DM1 / 2))
Mc2V = C2V * (A + B + C + (DM2 / 2))
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Ma9V = Ea9V * (A + B + C + ((1 / 3) * D))
Mc3V = C3V * (A + B + C + (DM3 / 2))
Mc4V = C4V * (A + B + C + (DM4 / 2))
Mc5V = C5V * (A + B + C + (D / 2))
Mc6V = C6V * (L)
JEqH = Eq1H + Eq2H + Eq3H + Eq4H + Eq5H + Eq6H
JEqV = Eq1V + Eq2V + Eq3V + Eq4V + Eq5V + Eq6V
JMqH = Mq1H + Mq2H + Mq3H + Mq4H + Mq5H + Mq6H
JMqV = Mq1V + Mq2V + Mq3V + Mq4V + Mq5V + Mq6V
JEaV = Ea1V + Ea2V + Ea3V + Ea4V + Ea5V + Ea6V + Ea7V + Ea8V + Ea9V + Ea10V + Ea11V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H + Ea5H + Ea6H + Ea7H + Ea8H + Ea9II + Ea10H + Ea11H
JMaH = Ma1H + Ma2H + Ma3H + Ma4H + Ma5H + Ma6H + Ma7H + Ma8H + Ma9H + Ma10H + Ma11H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V + Ma5V + Ma6V + Ma7V + Ma8V + Ma9V + Ma10V + Ma11V
JCH = C1H + C2H + C3H + C4H + C5H + C6H
JCV = C1V + C2V + C3V + C4V + C5V + C6V
JMCH = Mc1H + Mc2H + Mc3H + Mc4H + Mc5H + Mc6H
JMCV = Mc1V + Mc2V + Mc3V + Mc4V + Mc5V + Mc6V
EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH
'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + L1 * Gb1) * L2 * Ka2
Eq3i = (Q + L1 * Gb1 + L2 * Ga2) * L3 * Ka3
Eq4i = (Q + L1 * Gb1 + L2 * Ga2 + L3 * Ga3) * L4 * Ka4
Eq5i = (Q + L1 * Gb1 + L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * L5 * Ka5
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
Eq5Hi = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * Eq5i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Eq4i
Eq5Vi = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * Eq5i
Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 + H4 + H5))
Mq2Hi = Eq2Hi * ((H2 / 2) + H3 + H4 + H5)
Mq3Hi = Eq3Hi * ((H3 / 2) + H4 + H5)
Mq4Hi = Eq4Hi * ((H4 / 2) + H5)
Mq5Hi = Eq5Hi * (H5 / 2)
Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
Mq4Vi = Eq4Vi * (B + C + (DM4 / 2))
Mq5Vi = Eq5Vi * (B + C + (D / 2))

'Beban Tanah'
Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
Ea2i = (L1 * Gb1) * Ka2 * L2
Ea3i = 0.5 * L2 ^ 2 * Ga2 * Ka2
Ea4i = (L1 * Gb1 + L2 * Ga2) * Ka3 * L3
Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
Ea6i = (L1 * Gb1 + L2 * Ga2 + L3 * Ga3) * Ka4 * L4
Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
Ea8i = (L1 * Gb1 + L2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka5 * L5
Ea9i = 0.5 * L5 ^ 2 * Ga5 * Ka5
Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Ea1i
Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea2i
Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Ea3i
Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea4i
Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Ea5i
Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Ea6i
Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Ea7i
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   Ea8Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 +
H4 + H5))
   Ma2Hi = Ea2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Ma3Hi = Ea3Hi * ((H2 / 3) + H3 + H4 +
H5)
   Ma4Hi = Ea4Hi * ((H3 / 2) + H4 + H5)
   Ma5Hi = Ea5Hi * ((H3 / 3) + H4 + H5)
   Ma6Hi = Ea6Hi * ((H4 / 2) + H5)
   Ma7Hi = Ea7Hi * ((H4 / 3) + H5)
   Ma8Hi = Ea8Hi * (H5 / 2)
   Ma9Hi = Ea9Hi * (H5 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
   Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
   Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM3))
   Ma6Vi = Ea6Vi * (B + C + (DM4 / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM4))
   Ma8Vi = Ea8Vi * (B + C + (D / 2))
   Ma9Vi = Ea9Vi * (B + C + ((1 / 3) * D))

   'Beban Air'
   Pairi = 0.5 * (L2 + L3 + L4 + L5) ^ 2 * Gw
   PairHi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5i = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 +
H4 + H5))
   Mc2Hi = C2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Mc3Hi = C3Hi * ((H3 / 2) + H4 + H5)
   Mc4Hi = C4Hi * ((H4 / 2) + H5)
   Mc5Hi = C5Hi * (H5 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (DM4 / 2))
   Mc5Vi = C5Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
+ Ma9Hi
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   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi +
C5Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi +
C5Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi + Mc5Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi + Mc5Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi + MairHi
End Sub
Sub Ba4()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * (L2 - Lw2) * Ka2
   Eq3 = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2)
* Lw2 * Ka2
   Eq4 = (Q + L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2) * L3 * Ka3
   Eq5 = (Q + L1 * Gb1 + (L2 - Lw2) * Ga1 +
Lw2 * Ga2 + L3 * Ga3) * L4 * Ka4
   Eq6 = (Q + L1 * Gb1 + (L2 - Lw2) * Ga1 +
Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4) * L5 *
Ka5
   Eq7 = (Q + L1 * Gb1 + (L2 - Lw2) * Ga1 +
Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4 + L5 *
Ga5) * T2 * Ka5
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Eq7H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq7
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Eq7V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq7
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 +
H4 + H5 + T2))
   Mq2H = Eq2H * (((H2 - Hw2) / 2) + (Hw2
+ H3 + H4 + H5 + T2))
   Mq3H = Eq3H * ((Hw2 / 2) + (H3 + H4 +
H5 + T2))
   Mq4H = Eq4H * ((H3 / 2) + (H4 + H5 +
T2))
   Mq5H = Eq5H * ((H4 / 2) + (H5 + T2))
   Mq6H = Eq6H * ((H5 / 2) + T2)
   Mq7H = Eq7H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2a / 2))
   Mq3V = Eq3V * (A + B + C + (DM2 / 2))
   Mq4V = Eq4V * (A + B + C + (DM3 / 2))
   Mq5V = Eq5V * (A + B + C + (DM4 / 2))
   Mq6V = Eq6V * (A + B + C + (D / 2))
   Mq7V = Eq7V * Lw2


   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * (L2 - Lw2)
   Ea3 = 0.5 * (L2 - Lw2) ^ 2 * Gb2 * Ka2
   Ea4 = ((L1 * Gb1 + (L2 - Lw2) * Gb2) *
Ka2) * Lw2
   Ea5 = 0.5 * (Lw2) ^ 2 * Ga2 * Ka2
   Ea6 = (((L1 * Gb1 + (L2 - Lw2) * Gb2) +
Lw2 * Ga2) * Ka3) * L3
   Ea7 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea8 = (((L1 * Gb1 + (L2 - Lw2) * Gb2) +
Lw2 * Ga2 + L3 * Ga3) * Ka4) * L4
   Ea9 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea10 = (((L1 * Gb1 + (L2 - Lw2) * Gb2) +
Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka5) *
L5
   Ea11 = 0.5 * (L5) ^ 2 * Ga5 * Ka5
   Ea12 = (((L1 * Gb1 + (L2 - Lw2) * Gb2) +
Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4 + L5 *
Ga5) * Ka5) * T2
   Ea13 = 0.5 * (T2) ^ 2 * Ga5 * Ka5
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
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   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ea12H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea12
   Ea13H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea13
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ea12V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea12
   Ea13V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea13
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ H5 + T2))
   Ma2H = Ea2H * (((H2 - Hw2) / 2) + (Hw2
+ H3 + H4 + H5))
   Ma3H = Ea3H * (((H2 - Hw2) / 3) + (Hw2
+ H3 + H4 + H5))
   Ma4H = Ea4H * ((Hw2 / 2) + (H3 + H4 +
H5 + T2))
   Ma5H = Ea5H * ((Hw2 / 3) + (H3 + H4 +
H5 + T2))
   Ma6H = Ea6H * ((H3 / 2) + (H4 + H5 +
T2))
   Ma7H = Ea7H * ((H3 / 3) + (H4 + H5 +
T2))
   Ma8H = Ea8H * ((H4 / 2) + (H5 + T2))
   Ma9H = Ea9H * ((H4 / 3) + (H5 + T2))
   Ma10H = Ea10H * ((H5 / 2) + T2)
   Ma11H = Ea11H * ((H5 / 3) + T2)
   Ma12H = Ea12H * (T2 / 2)
   Ma13H = Ea13H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2a / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) *
DM2a))
   Ma4V = Ea4V * (A + B + C + (DM2 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM2))
   Ma6V = Ea6V * (A + B + C + (DM3 / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) *
DM3))
   Ma8V = Ea8V * (A + B + C + (DM4 / 2))
   Ma9V = Ea9V * (A + B + C + ((1 / 3) *
DM4))
   Ma10V = Ea10V * (A + B + C + (D / 2))
   Ma11V = Ea11V * (A + B + C + ((1 / 3) *
D))
   Ma12V = Ea12V * (L)
   Ma13V = Ea13V * (L)


   'Beban Air'
   Pair = 0.5 * ((L2 - Lw2) + L3 + L4 + L5 +
T2) ^ 2 * Gw
   PairH = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)

   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C6 = T2 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
```

```
C2H = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3H = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * C3
C4H = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * C4
C5H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * C5
C6H = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * C6
C1V = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * C1
C2V = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * C2
C3V = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * C3
C4V = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * C4
C5V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * C5
C6V = (Sin((Delta5 + lamda) / (180 * 7 / 22))) * C6
Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4 + H5 + T2))
Mc2H = C2H * ((H2 / 2) + (H3 + H4 + H5 + T2))
Mc3H = C3H * ((H3 / 2) + (H4 + H5 + T2))
Mc4H = C4H * ((H4 / 2) + (H5 + T2))
Mc5H = C5H * ((H5 / 2) + T2)
Mc6H = C6H * (T2 / 2)
Mc1V = C1V * (A + B + C + (DM1 / 2))
Mc2V = C2V * (A + B + C + (DM2 / 2))
Mc3V = C3V * (A + B + C + (DM3 / 2))
Mc4V = C4V * (A + B + C + (DM4 / 2))
Mc5V = C5V * (A + B + C + (D / 2))
Mc6V = C6V * (L)
JEqH = Eq1H + Eq2H + Eq3H + Eq4H + Eq5H + Eq6H + Eq7H
JEqV = Eq1V + Eq2V + Eq3V + Eq4V + Eq5V + Eq6V + Eq7V
JMqH = Mq1H + Mq2H + Mq3H + Mq4H + Mq5H + Mq6H + Mq7H
JMqV = Mq1V + Mq2V + Mq3V + Mq4V + Mq5V + Mq6V + Mq7V
JEaV = Ea1V + Ea2V + Ea3V + Ea4V + Ea5V + Ea6V + Ea7V + Ea8V + Ea9V + Ea10V + Ea11V + Ea12V + Ea13V
JEaH = Ea1H + Ea2H + Ea3H + Ea4H + Ea5H + Ea6H + Ea7H + Ea8H + Ea9H + Ea10H + Ea11H + Ea12H + Ea13H
JMaH = Ma1H + Ma2H + Ma3H + Ma4H + Ma5H + Ma6H + Ma7H + Ma8H + Ma9H + Ma10H + Ma11H + Ea12H + Ea13H
JMaV = Ma1V + Ma2V + Ma3V + Ma4V + Ma5V + Ma6V + Ma7V + Ma8V + Ma9V + Ma10V + Ma11V + Ea12V + Ea13V
JCH = C1H + C2H + C3H + C4H + C5H + C6H
JCV = C1V + C2V + C3V + C4V + C5V + C6V
JMCH = Mc1H + Mc2H + Mc3H + Mc4H + Mc5H + Mc6H
JMCV = Mc1V + Mc2V + Mc3V + Mc4V + Mc5V + Mc6V

EaV = (JEqV + JEaV) - JCV + PairV
Ea = (JEqH + JEaH) - JCH + PairH
MaV = (JMqV + JMaV) - JMCV + MairV
Ma = (JMqH + JMaH) - JMCH + MairH

'Gaya Internal'
'Beban Merata Q'
QQ = Q
Do While QQ <> 0
Eq1i = (Q * L1) * Ka1
Eq2i = (Q + L1 * Gb1) * (L2 - Lw2) * Ka1
Eq3i = (Q + (L1 * Gb1) + (L2 - Lw2) * Gb2) * Lw2 * Ka2
Eq4i = (Q + (L1 * Gb1) + (L2 - Lw2) * Gb2 + Lw2 * Ga2) * L3 * Ka3
Eq5i = (Q + (L1 * Gb1) + (L2 - Lw2) * Gb2 + Lw2 * Ga2 + L3 * Ga3) * L4 * Ka4
Eq6i = (Q + (L1 * Gb1) + (L2 - Lw2) * Gb2 + Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4) * L5 * Ka5
QQ = 0
Loop
Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Hi = (Cos((Delta1 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Hi = (Cos((Delta2 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Hi = (Cos((Delta3 + lamda) / (180 * 7 / 22))) * Eq4i
Eq5Hi = (Cos((Delta4 + lamda) / (180 * 7 / 22))) * Eq5i
Eq6Hi = (Cos((Delta5 + lamda) / (180 * 7 / 22))) * Eq6i
Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq1i
Eq2Vi = (Sin((Delta1 + lamda) / (180 * 7 / 22))) * Eq2i
Eq3Vi = (Sin((Delta2 + lamda) / (180 * 7 / 22))) * Eq3i
Eq4Vi = (Sin((Delta3 + lamda) / (180 * 7 / 22))) * Eq4i
Eq5Vi = (Sin((Delta4 + lamda) / (180 * 7 / 22))) * Eq5i
Eq6Vi = (Sin((Delta5 + lamda) / (180 * 7 /
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```
22))) * Eq6i
   Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 +
H4 + H5))
   Mq2Hi = Eq2Hi * (((H2 - Hw2) / 2) +
(Hw2 + H3 + H4 + H5))
   Mq3Hi = Eq3Hi * ((Hw2) / 2) + (H3 + H4
+ H5)
   Mq4Hi = Eq4Hi * ((H3 / 2) + (H4 + H5))
   Mq5Hi = Eq5Hi * ((H4 / 2) + H5)
   Mq6Hi = Eq6Hi * (H5 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM2a / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM2 / 2))
   Mq4Vi = Eq4Vi * (B + C + (DM3 / 2))
   Mq5Vi = Eq5Vi * (B + C + (DM4 / 2))
   Mq6Vi = Eq6Vi * (B + C + (D / 2))
   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2i = (L1 * Gb1) * Ka2 * (L2 - Lw2)
   Ea3i = 0.5 * (L2 - Lw2) ^ 2 * Gb2 * Ka2
   Ea4i = (L1 * Gb1 + (L2 - Lw2) * Gb2) *
Ka2 * Lw2
   Ea5i = 0.5 * (Lw2) ^ 2 * Ga2 * Ka2
   Ea6i = (L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2) * Ka3 * L3
   Ea7i = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea8i = (L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2 + L3 * Ga3) * Ka4 * L4
   Ea9i = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea10i = (L1 * Gb1 + (L2 - Lw2) * Gb2 +
Lw2 * Ga2 + L3 * Ga3 + L4 * Ga4) * Ka5 *
L5
   Ea11i = 0.5 * (L5) ^ 2 * Ga5 * Ka5
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea10Hi = (Cos((Delta5 + lamda) / (180 * 7
/ 22))) * Ea10i
   Ea11Hi = (Cos((Delta5 + lamda) / (180 * 7
/ 22))) * Ea11i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea10Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea10i
   Ea11Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea11i
   Ma1Hi = Ea1Hi * ((H1 / 2) + (H2 + H3 +
H4 + H5))
   Ma2Hi = Ea2Hi * (((H2 - Hw2) / 2) +
(Hw2 + H3 + H4 + H5))
   Ma3Hi = Ea3Hi * (((H2 - Hw2) / 3) +
(Hw2 + H3 + H4 + H5))
   Ma4Hi = Ea4Hi * ((Hw2) / 2) + (H3 + H4
+ H5)
   Ma5Hi = Ea5Hi * ((Hw2) / 3) + (H3 + H4
+ H5)
   Ma6Hi = Ea6Hi * ((H3 / 2) + (H4 + H5))
   Ma7Hi = Ea7Hi * ((H3 / 3) + (H4 + H5))
   Ma8Hi = Ea8Hi * ((H4 / 2) + H5)
   Ma9Hi = Ea9Hi * ((H4 / 3) + H5)
   Ma10Hi = Ea10Hi * (H5 / 2)
   Ma11Hi = Ea11Hi * (H5 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
   Ma2Vi = Ea2Vi * (B + C + (DM2a / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2a))
   Ma4Vi = Ea4Vi * (B + C + (DM2 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM2))
   Ma6Vi = Ea6Vi * (B + C + (DM3 / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM3))
   Ma8Vi = Ea8Vi * (B + C + (DM4 / 2))
   Ma9Vi = Ea9Vi * (B + C + ((1 / 3) *
DM4))
   Ma10Vi = Ea10Vi * (B + C + (D / 2))
   Ma11Vi = Ea11Vi * (B + C + ((1 / 3) * D))
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```
'Beban Air'
   Pairi = 0.5 * (Lw2 + L3 + L4 + L5) ^ 2 *
Gw
   PairHi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5i = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 + H4
+ H5))
   Mc2Hi = C2Hi * ((H2 / 2) + H3 + H4 + H5)
   Mc3Hi = C3Hi * ((H3 / 2) + H4 + H5)
   Mc4Hi = C4Hi * ((H4 / 2) + H5)
   Mc5Hi = C5Hi * (H5 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (DM4 / 2))
   Mc5Vi = C5Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi + Eq6Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi + Eq6Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi + Mq6Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi + Mq6Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi +
Ea10Vi + Ea11Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi +
Ea10Hi + Ea11Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
+ Ma9Hi + Ma10Hi + Ma11Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi + Ma10Vi + Ma11Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi +
C5Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi +
C5Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi + Mc5Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi + Mc5Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi +
MairHi
End Sub
Sub Ba5()
   'Gaya Eksternal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1 = (Q * L1) * Ka1
   Eq2 = (Q + L1 * Gb1) * L2 * Ka2
   Eq3 = (Q + L1 * Gb1 + L2 * Gb2) * L3 *
Ka3
   Eq4 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3) * L4 * Ka4
   Eq5 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3 + L4 * Ga4) * L5 * Ka5
   Eq6 = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3 + L4 * Ga4 + L5 * Ga5) * T2 * Ka5
   QQ = 0
   Loop
   Eq1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5H = (Cos((Delta5 + lamda) / (180 * 7 /
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22))) * Eq5
   Eq6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Eq1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1
   Eq2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2
   Eq3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3
   Eq4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4
   Eq5V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq5
   Eq6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq6
   Mq1H = Eq1H * ((H1 / 2) + (H2 + H3 + H4
+ H5 + T2))
   Mq2H = Eq2H * ((H2 / 2) + (H3 + H4 + H5
+ T2))
   Mq3H = Eq3H * ((H3 / 2) + (H4 + H5 +
T2))
   Mq4H = Eq4H * ((H4 / 2) + (H5 + T2))
   Mq5H = Eq5H * ((H5 / 2) + T2)
   Mq6H = Eq6H * (T2 / 2)
   Mq1V = Eq1V * (A + B + C + (DM1 / 2))
   Mq2V = Eq2V * (A + B + C + (DM2 / 2))
   Mq3V = Eq3V * (A + B + C + (DM3 / 2))
   Mq4V = Eq4V * (A + B + C + (DM4 / 2))
   Mq5V = Eq5V * (A + B + C + (D / 2))
   Mq6V = Eq6V * (L)

   'Beban Tanah'
   Ea1 = 0.5 * (L1) ^ 2 * Gb1 * Ka1
   Ea2 = ((L1 * Gb1) * Ka2) * L2
   Ea3 = 0.5 * (L2) ^ 2 * Gb2 * Ka2
   Ea4 = ((L1 * Gb1 + L2 * Gb2) * Ka3) * L3
   Ea5 = 0.5 * (L3) ^ 2 * Ga3 * Ka3
   Ea6 = ((L1 * Gb1 + L2 * Gb2 + L3 * Ga3)
* Ka4) * L4
   Ea7 = 0.5 * (L4) ^ 2 * Ga4 * Ka4
   Ea8 = ((L1 * Gb1 + L2 * Gb2 + L3 * Ga3 +
L4 * Ga4) * Ka5) * L5
   Ea9 = 0.5 * (L5) ^ 2 * Ga5 * Ka5
   Ea10 = ((L1 * Gb1 + L2 * Gb2 + L3 * Ga3
+ L4 * Ga4 + L5 * Ga5) * Ka5) * T2
   Ea11 = 0.5 * (T2) ^ 2 * Ga5 * Ka5
   Ea1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ea1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1
   Ea2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2
   Ea3V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3
   Ea4V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4
   Ea5V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5
   Ea6V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6
   Ea7V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7
   Ea8V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea8
   Ea9V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea9
   Ea10V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea10
   Ea11V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea11
   Ma1H = Ea1H * ((H1 / 3) + (H2 + H3 + H4
+ H5 + T2))
   Ma2H = Ea2H * ((H2 / 2) + (H3 + H4 + H5
+ T2))
   Ma3H = Ea3H * ((H2 / 3) + (H3 + H4 + H5
+ T2))
   Ma4H = Ea4H * ((H3 / 2) + (H4 + H5 +
T2))
   Ma5H = Ea5H * ((H3 / 3) + (H4 + H5 +
T2))
   Ma6H = Ea6H * ((H4 / 2) + (H5 + T2))
   Ma7H = Ea7H * ((H4 / 3) + (H5 + T2))
   Ma8H = Ea8H * ((H5 / 2) + T2)
   Ma9H = Ea9H * ((H5 / 3) + T2)
   Ma10H = Ea10H * (T2 / 2)
   Ma11H = Ea11H * (T2 / 3)
   Ma1V = Ea1V * (A + B + C + ((1 / 3) *
DM1))
   Ma2V = Ea2V * (A + B + C + (DM2 / 2))
   Ma3V = Ea3V * (A + B + C + ((1 / 3) * +
```

```
DM2))
   Ma4V = Ea4V * (A + B + C + (DM3 / 2))
   Ma5V = Ea5V * (A + B + C + ((1 / 3) *
DM3))
   Ma6V = Ea6V * (A + B + C + (DM4 / 2))
   Ma7V = Ea7V * (A + B + C + ((1 / 3) *
DM4))
   Ma8V = Ea8V * (A + B + C + (D / 2))
   Ma9V = Ea9V * (A + B + C + ((1 / 3) * D))
   Ma10V = Ea10V * (L)
   Ma11V = Ea11V * (L)

   'Beban Air'
   Pair = 0.5 * (L3 + L4 + L5 + T2) ^ 2 * Gw
   PairH = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   PairV = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pair
   MairH = PairH * (Hwt / 3)
   MairV = PairV * (L)
   'Cohesi Tanah'
   C1 = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2 = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3 = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4 = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5 = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C6 = T2 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1H = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2H = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3H = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4H = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5
   C6H = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C6
   C1V = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1
   C2V = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2
   C3V = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3
   C4V = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4
   C5V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5
   C6V = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C6
   Mc1H = C1H * ((H1 / 2) + (H2 + H3 + H4
+ H5 + T2))
   Mc2H = C2H * ((H2 / 2) + (H3 + H4 + H5
T2))
   Mc3H = C3H * ((H3 / 2) + (H4 + H5 +
T2))
   Mc4H = C4H * ((H4 / 2) + (H5) + T2)
   Mc5H = C5H * ((H5 / 2) + T2)
   Mc6H = C6H * (T2 / 2)
   Mc1V = C1V * (A + B + C + (DM1 / 2))
   Mc2V = C2V * (A + B + C + (DM2 / 2))
   Mc3V = C3V * (A + B + C + (DM3 / 2))
   Mc4V = C4V * (A + B + C + (DM4 / 2))
   Mc5V = C5V * (A + B + C + (D / 2))
   Mc6V = C6V * (L)
   JEqH = Eq1H + Eq2H + Eq3H + Eq4H +
Eq5H + Eq6H
   JEqV = Eq1V + Eq2V + Eq3V + Eq4V +
Eq5V + Eq6V
   JMqH = Mq1H + Mq2H + Mq3H + Mq4H
+ Mq5H + Mq6H
   JMqV = Mq1V + Mq2V + Mq3V + Mq4V
+ Mq5V + Mq6V
   JEaV = Ea1V + Ea2V + Ea3V + Ea4V +
Ea5V + Ea6V + Ea7V + Ea8V + Ea9V +
Ea10V + Ea11V
   JEaH = Ea1H + Ea2H + Ea3H + Ea4H +
Ea5H + Ea6H + Ea7H + Ea8H + Ea9H +
Ea10H + Ea11H
   JMaH = Ma1H + Ma2H + Ma3H + Ma4H
+ Ma5H + Ma6H + Ma7H + Ma8H + Ma9H +
Ma10H + Ma11H
   JMaV = Ma1V + Ma2V + Ma3V + Ma4V
+ Ma5V + Ma6V + Ma7V + Ma8V + Ma9V +
Ma10V + Ma11V
   JCH = C1H + C2H + C3H + C4H + C5H +
C6H
   JCV = C1V + C2V + C3V + C4V + C5V +
C6V
   JMCH = Mc1H + Mc2H + Mc3H + Mc4H
+ Mc5H + Mc6H
   JMCV = Mc1V + Mc2V + Mc3V + Mc4V
+ Mc5V + Mc6V

   EaV = (JEqV + JEaV) - JCV + PairV
   Ea = (JEqH + JEaH) - JCH + PairH
   MaV = (JMqV + JMaV) - JMCV + MairV
   Ma = (JMqH + JMaH) - JMCH + MairH

   'Gaya Internal'
   'Beban Merata Q'
   QQ = Q
   Do While QQ <> 0
   Eq1i = (Q * L1) * Ka1
   Eq2i = (Q + L1 * Gb1) * L2 * Ka2
   Eq3i = (Q + L1 * Gb1 + L2 * Gb2) * L3 *
Ka3
   Eq4i = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
```

```
Ga3) * L4 * Ka4
   Eq5i = (Q + L1 * Gb1 + L2 * Gb2 + L3 *
Ga3 + L4 * Ga4) * L5 * Ka5
   QQ = 0
   Loop
   Eq1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq5Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Eq5i
   Eq1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Eq1i
   Eq2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Eq2i
   Eq3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Eq3i
   Eq4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Eq4i
   Eq5Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Eq5i
   Mq1Hi = Eq1Hi * ((H1 / 2) + (H2 + H3 +
H4 + H5))
   Mq2Hi = Eq2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Mq3Hi = Eq3Hi * ((H3 / 2) + H4 + H5)
   Mq4Hi = Eq4Hi * ((H4 / 2) + H5)
   Mq5Hi = Eq5Hi * (H5 / 2)
   Mq1Vi = Eq1Vi * (B + C + (DM1 / 2))
   Mq2Vi = Eq2Vi * (B + C + (DM2 / 2))
   Mq3Vi = Eq3Vi * (B + C + (DM3 / 2))
   Mq4Vi = Eq4Vi * (B + C + (DM4 / 2))
   Mq5Vi = Eq5Vi * (B + C + (D / 2))

   'Beban Tanah'
   Ea1i = 0.5 * L1 ^ 2 * Gb1 * Ka1
   Ea2i = (L1 * Gb1) * Ka2 * L2
   Ea3i = 0.5 * L2 ^ 2 * Gb2 * Ka2
   Ea4i = (L1 * Gb1 + L2 * Gb2) * Ka3 * L3
   Ea5i = 0.5 * L3 ^ 2 * Ga3 * Ka3
   Ea6i = (L1 * Gb1 + L2 * Gb2 + L3 * Ga3)
* Ka4 * L4
   Ea7i = 0.5 * L4 ^ 2 * Ga4 * Ka4
   Ea8i = (L1 * Gb1 + L2 * Gb2 + L3 * Ga3 +
L4 * Ga4) * Ka5 * L5
   Ea9i = 0.5 * L5 ^ 2 * Ga5 * Ka5
   Ea1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ea1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * Ea1i
   Ea2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea2i
   Ea3Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * Ea3i
   Ea4Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea4i
   Ea5Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * Ea5i
   Ea6Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea6i
   Ea7Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * Ea7i
   Ea8Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea8i
   Ea9Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Ea9i
   Ma1Hi = Ea1Hi * ((H1 / 3) + (H2 + H3 +
H4 + H5))
   Ma2Hi = Ea2Hi * ((H2 / 2) + H3 + H4 +
H5)
   Ma3Hi = Ea3Hi * ((H2 / 3) + H3 + H4 +
H5)
   Ma4Hi = Ea4Hi * ((H3 / 2) + H4 + H5)
   Ma5Hi = Ea5Hi * ((H3 / 3) + H4 + H5)
   Ma6Hi = Ea6Hi * ((H4 / 2) + H5)
   Ma7Hi = Ea7Hi * ((H4 / 3) + H5)
   Ma8Hi = Ea8Hi * (H5 / 2)
   Ma9Hi = Ea9Hi * (H5 / 3)
   Ma1Vi = Ea1Vi * (B + C + ((1 / 3) *
DM1))
   Ma2Vi = Ea2Vi * (B + C + (DM2 / 2))
   Ma3Vi = Ea3Vi * (B + C + ((1 / 3) *
DM2))
   Ma4Vi = Ea4Vi * (B + C + (DM3 / 2))
   Ma5Vi = Ea5Vi * (B + C + ((1 / 3) *
DM3))
   Ma6Vi = Ea6Vi * (B + C + (DM4 / 2))
   Ma7Vi = Ea7Vi * (B + C + ((1 / 3) *
DM4))
   Ma8Vi = Ea8Vi * (B + C + (D / 2))
```

```
Ma9Vi = Ea9Vi * (B + C + ((1 / 3) * D)
   'Beban Air'
   Pairi = 0.5 * (L3 + L4 + L5) ^ 2 * Gw
   PairHi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   PairVi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * Pairi
   MairHi = PairHi * (Hwt / 3)
   MairVi = PairVi * (B + C + ((1 / 3) * D))

   'Cohesi'
   C1i = L1 * 2 * Ch1 * ((Ka1) ^ 0.5)
   C2i = L2 * 2 * Ch2 * ((Ka2) ^ 0.5)
   C3i = L3 * 2 * Ch3 * ((Ka3) ^ 0.5)
   C4i = L4 * 2 * Ch4 * ((Ka4) ^ 0.5)
   C5i = L5 * 2 * Ch5 * ((Ka5) ^ 0.5)
   C1Hi = (Cos((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Hi = (Cos((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Hi = (Cos((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Hi = (Cos((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Hi = (Cos((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   C1Vi = (Sin((Delta1 + lamda) / (180 * 7 /
22))) * C1i
   C2Vi = (Sin((Delta2 + lamda) / (180 * 7 /
22))) * C2i
   C3Vi = (Sin((Delta3 + lamda) / (180 * 7 /
22))) * C3i
   C4Vi = (Sin((Delta4 + lamda) / (180 * 7 /
22))) * C4i
   C5Vi = (Sin((Delta5 + lamda) / (180 * 7 /
22))) * C5i
   Mc1Hi = C1Hi * ((H1 / 2) + (H2 + H3 + H4
+ H5))
   Mc2Hi = C2Hi * ((H2 / 2) + H3 + H4 + H5)
   Mc3Hi = C3Hi * ((H3 / 2) + H4 + H5)
   Mc4Hi = C4Hi * ((H4 / 2) + H5)
   Mc5Hi = C5Hi * (H5 / 2)
   Mc1Vi = C1Vi * (B + C + (DM1 / 2))
   Mc2Vi = C2Vi * (B + C + (DM2 / 2))
   Mc3Vi = C3Vi * (B + C + (DM3 / 2))
   Mc4Vi = C4Vi * (B + C + (DM4 / 2))
   Mc5Vi = C5Vi * (B + C + (D / 2))
   JEqHi = Eq1Hi + Eq2Hi + Eq3Hi + Eq4Hi
+ Eq5Hi
   JEqVi = Eq1Vi + Eq2Vi + Eq3Vi + Eq4Vi
+ Eq5Vi
   JMqHi = Mq1Hi + Mq2Hi + Mq3Hi +
Mq4Hi + Mq5Hi
   JMqVi = Mq1Vi + Mq2Vi + Mq3Vi +
Mq4Vi + Mq5Vi
   JEaVi = Ea1Vi + Ea2Vi + Ea3Vi + Ea4Vi
+ Ea5Vi + Ea6Vi + Ea7Vi + Ea8Vi + Ea9Vi
   JEaHi = Ea1Hi + Ea2Hi + Ea3Hi + Ea4Hi
+ Ea5Hi + Ea6Hi + Ea7Hi + Ea8Hi + Ea9Hi
   JMaHi = Ma1Hi + Ma2Hi + Ma3Hi +
Ma4Hi + Ma5Hi + Ma6Hi + Ma7Hi + Ma8Hi
+ Ma9Hi
   JMaVi = Ma1Vi + Ma2Vi + Ma3Vi +
Ma4Vi + Ma5Vi + Ma6Vi + Ma7Vi + Ma8Vi
+ Ma9Vi
   JCHi = C1Hi + C2Hi + C3Hi + C4Hi +
C5Hi
   JCVi = C1Vi + C2Vi + C3Vi + C4Vi +
C5Vi
   JMCHi = Mc1Hi + Mc2Hi + Mc3Hi +
Mc4Hi + Mc5Hi
   JMCVi = Mc1Vi + Mc2Vi + Mc3Vi +
Mc4Vi + Mc5Vi

   EaVi = (JEqVi + JEaVi) - JCVi + PairVi
   Eai = (JEqHi + JEaHi) - JCHi + PairHi
   MaVi = (JMqVi + JMaVi) - JMCVi +
MairVi
   Mai = (JMqHi + JMaHi) - JMCHi +
MairHi
End Sub
Sub Gammatnh()
On Error Resume Next
Do While xx <> 0
MDIForm1.StatusBar1.Panels("koko").Text =
"Data berat volume tanah"
   H1 = Text3.Text
   H2 = Text7.Text
   H3 = Text11.Text
   H4 = Text15.Text
   H5 = Text19.Text
   If Option1.Value = True Then GoTo
BBasah
   If Option2.Value = True Then GoTo
KKering
BBasah:
      If Ht = Hwt Then
         pesan1 = "Berat Volume Tanah
Terendam Lapis 1="
         pesan2 = "Berat Volume Tanah
Terendam Lapis 2="
         pesan3 = "Berat Volume Tanah
Terendam Lapis 3="
         pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
         pesan5 = "Berat Volume Tanah
Terendam Lapis 5="
         Ga1 = InputBox(pesan1, "Gamma
Aksen")
```

```
        Ga2 = InputBox(pesan2, "Gamma
Aksen")
        Ga3 = InputBox(pesan3, "Gamma
Aksen")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
        Ga5 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf Hwt > (H2 + H3 + H4 + H5) And
Ht > Hwt Then
pesan1 = "Berat Volume Tanah Basah Lapis
1="
pesan2 = "Berat Volume Tanah Terendam
Lapis 1="
pesan3 = "Berat Volume Tanah Terendam
Lapis 2="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan6 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
Ga1 = InputBox(pesan2, "Gamma Aksen")
Ga2 = InputBox(pesan3, "Gamma Aksen")
        Ga3 = InputBox(pesan4, "Gamma
Aksen")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
        Ga5 = InputBox(pesan6, "Gamma
Aksen")
    ElseIf Hwt = (H2 + H3 + H4 + H5) And
Ht > Hwt Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah
Terendam Lapis 2="
        pesan3 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Ga2 = InputBox(pesan2, "Gamma
Aksen")
        Ga3 = InputBox(pesan3, "Gamma
Aksen")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
        Ga5 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf Hwt > (H3 + H4 + H5) And (H2 +
H3 + H4 + H5) > Hwt Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah
Terendam Lapis 2="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan6 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Ga2 = InputBox(pesan3, "Gamma
Aksen")
        Ga3 = InputBox(pesan4, "Gamma
Aksen")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
        Ga5 = InputBox(pesan6, "Gamma
Aksen")
    ElseIf Hwt = (H3 + H4 + H5) And (H2 +
H3 + H4 + H5) > Hwt Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Ga3 = InputBox(pesan3, "Gamma
Aksen")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
        Ga5 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf Hwt > (H4 + H5) And (H3 + H4 +
H5) > Hwt Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
```

```
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 3="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan6 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Ga3 = InputBox(pesan4, "Gamma
Aksen")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
        Ga5 = InputBox(pesan6, "Gamma
Aksen")
    ElseIf Hwt = (H4 + H5) And (H3 + H4 +
H5) > Hwt Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Ga4 = InputBox(pesan4, "Gamma
Aksen")
Ga5 = InputBox(pesan5, "Gamma Aksen")
    ElseIf Hwt > (H5) And (H4 + H5) > Hwt
Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah Basah
Lapis 4="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 4="
        pesan6 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Gb4 = InputBox(pesan4, "Gamma
Basah")
        Ga4 = InputBox(pesan5, "Gamma
Aksen")
        Ga5 = InputBox(pesan6, "Gamma
Aksen")
    ElseIf (H5) = Hwt And Hwt < (H4 + H5)
Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah Basah
Lapis 4="
        pesan5 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Gb4 = InputBox(pesan4, "Gamma
Basah")
        Ga5 = InputBox(pesan5, "Gamma
Aksen")
    ElseIf Hwt < (H5) And (H4 + H5) > Hwt
Then
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah Basah
Lapis 4="
        pesan5 = "Berat Volume Tanah Basah
Lapis 5="
        pesan6 = "Berat Volume Tanah
Terendam Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
```

```
        Gb4 = InputBox(pesan4, "Gamma
Basah")
        Gb5 = InputBox(pesan5, "Gamma
Basah")
        Ga5 = InputBox(pesan6, "Gamma
Aksen")
End If
        xx = 0
     Exit Sub
KKering:
        pesan1 = "Berat Volume Tanah Basah
Lapis 1="
        pesan2 = "Berat Volume Tanah Basah
Lapis 2="
        pesan3 = "Berat Volume Tanah Basah
Lapis 3="
        pesan4 = "Berat Volume Tanah Basah
Lapis 4="
        pesan5 = "Berat Volume Tanah Basah
Lapis 5="
        Gb1 = InputBox(pesan1, "Gamma
Basah")
        Gb2 = InputBox(pesan2, "Gamma
Basah")
        Gb3 = InputBox(pesan3, "Gamma
Basah")
        Gb4 = InputBox(pesan4, "Gamma
Basah")
Gb5 = InputBox(pesan5, "Gamma Basah")
        xx = 0
Loop
MDIForm1.StatusBar1.Panels("koko").Text =
"Proses Optimasi ....."
End Sub
Sub Parameter()
On Error Resume Next
   Q = Q.Text
   T1 = T1.Text
   gpas = gpas.Text
   Phi1 = Text1.Text
   Ch1 = Text2.Text
   H1 = Text3.Text
   Delta1 = Text4.Text
   Phi2 = Text5.Text
   Ch2 = Text6.Text
   H2 = Text7.Text
   Delta2 = Text8.Text
   Phi3 = Text9.Text
   Ch3 = Text10.Text
   H3 = Text11.Text
   Delta3 = Text12.Text
   Phi4 = Text13.Text
   Ch4 = Text14.Text
   H4 = Text15.Text
   Delta4 = Text16.Text
   Phi5 = Text17.Text
   Ch5 = Text18.Text
   H5 = Text19.Text
   Delta5 = Text20.Text
   Hwt = Hwt.Text
   alfa = (Atn(T1 / D)) * (180 * (7 / 22))
   lamda = (180 - (90 + alfa))
   L = (A + B + C + D + E)
   Lt = ((T1 ^ 2) + (D ^ 2)) ^ (0.5)
   Ht = T1 + T2
   L1 = (H1 / (Cos(lamda / (180 * 7 / 22))))
   L2 = (H2 / (Cos(lamda / (180 * 7 / 22))))
   L3 = (H3 / (Cos(lamda / (180 * 7 / 22))))
   L4 = (H4 / (Cos(lamda / (180 * 7 / 22))))
   L5 = (H5 / (Cos(lamda / (180 * 7 / 22))))
   DM1 = ((H1 * D) / T1)
   DM2 = (H2 * D) / T1
   DM3 = (H3 * D) / T1
   DM4 = (H4 * D) / T1
   Ka1 = ((Sin((alfa + Phi1) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta1) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi1 + Delta1) / (180 * 7 / 22))) *
(Sin(Phi1 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta1) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
   Ka2 = ((Sin((alfa + Phi2) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta2) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi2 + Delta2) / (180 * 7 / 22))) *
(Sin(Phi2 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta2) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
   Ka3 = ((Sin((alfa + Phi3) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta3) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi3 + Delta3) / (180 * 7 / 22))) *
(Sin(Phi3 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta3) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
   Ka4 = ((Sin((alfa + Phi4) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta4) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi4 + Delta4) / (180 * 7 / 22))) *
(Sin(Phi4 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta4) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
   Ka5 = ((Sin((alfa + Phi5) / (180 * 7 / 22)))
^ 2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa - Delta5) / (180 * 7 / 22)))) * (1 +
((((Sin((Phi5 + Delta5) / (180 * 7 / 22))) *
(Sin(Phi5 / (180 * 7 / 22)))) / ((Sin((alfa -
Delta5) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
```

```
   Kp = ((Sin((alfa - Phi5) / (180 * 7 / 22))) ^
2) / ((((Sin(alfa / (180 * 7 / 22))) ^ 2) *
(Sin((alfa + Delta5) / (180 * 7 / 22)))) * (1 -
((((Sin((Phi5 + Delta5) / (180 * 7 / 22))) *
(Sin(Phi5 / (180 * 7 / 22)))) / ((Sin((alfa +
Delta5) / (180 * 7 / 22))) * (Sin(alfa / (180 * 7
/ 22))))) ^ 0.5)) ^ 2)
End Sub
```

Data diskrit

```
Dim Linna As Integer
Dim Felix As Integer
Public AA(8), BB(8), CC(8), DD(8), EE(8),
TT2(8)
Sub DimensiA()
AA(0) = Poptimasi.Text6.Text
AA(1) = Poptimasi.Text7.Text
AA(2) = Poptimasi.Text8.Text
AA(3) = Poptimasi.Text9.Text
AA(4) = Poptimasi.Text10.Text
AA(5) = Poptimasi.Text11.Text
AA(6) = Poptimasi.Text12.Text
AA(7) = Poptimasi.Text13.Text
End Sub
Sub DimensiB()
BB(0) = Poptimasi.Text14.Text
BB(1) = Poptimasi.Text15.Text
BB(2) = Poptimasi.Text16.Text
BB(3) = Poptimasi.Text17.Text
BB(4) = Poptimasi.Text18.Text
BB(5) = Poptimasi.Text19.Text
BB(6) = Poptimasi.Text20.Text
BB(7) = Poptimasi.Text21.Text
End Sub
Sub DimensiC()
CC(0) = Poptimasi.Text22.Text
CC(1) = Poptimasi.Text23.Text
CC(2) = Poptimasi.Text24.Text
CC(3) = Poptimasi.Text25.Text
CC(4) = Poptimasi.Text26.Text
CC(5) = Poptimasi.Text27.Text
CC(6) = Poptimasi.Text28.Text
CC(7) = Poptimasi.Text29.Text
End Sub
Sub DimensiD()
DD(0) = Poptimasi.Text30.Text
DD(1) = Poptimasi.Text31.Text
DD(2) = Poptimasi.Text32.Text
DD(3) = Poptimasi.Text33.Text
DD(4) = Poptimasi.Text34.Text
DD(5) = Poptimasi.Text35.Text
DD(6) = Poptimasi.Text36.Text
DD(7) = Poptimasi.Text37.Text
End Sub
Sub DimensiE()
EE(0) = Poptimasi.Text38.Text
EE(1) = Poptimasi.Text39.Text
EE(2) = Poptimasi.Text40.Text
EE(3) = Poptimasi.Text41.Text
EE(4) = Poptimasi.Text42.Text
EE(5) = Poptimasi.Text43.Text
EE(6) = Poptimasi.Text44.Text
EE(7) = Poptimasi.Text45.Text
End Sub
Sub DimensiT2()
TT2(0) = Poptimasi.Text46.Text
TT2(1) = Poptimasi.Text47.Text
TT2(2) = Poptimasi.Text48.Text
TT2(3) = Poptimasi.Text49.Text
TT2(4) = Poptimasi.Text50.Text
TT2(5) = Poptimasi.Text51.Text
TT2(6) = Poptimasi.Text52.Text
TT2(7) = Poptimasi.Text53.Text
End Sub
Sub kontrol()
MDIForm1.Toolbar1.Buttons(1).Enabled =
False
MDIForm1.Toolbar1.Buttons(2).Enabled =
False
MDIForm1.Toolbar1.Buttons(3).Enabled =
False
MDIForm1.Toolbar1.Buttons(4).Enabled =
False
MDIForm1.Toolbar1.Buttons(5).Enabled =
False
End Sub
```