# Appendix
# Program & Sub-routine

## Main Program

Read table (3.1)
Read (Z)
Read table (3.2)
Read (Z)
Assign R1 for E_t
R2 for VE_t
R3 for E_h
R4 for VE_h
.
I=1
While
I <= 81
Do
J = 1
While
I <= 11
Do
Assign the value of ($J_1$, $J_2$, $J_3$, $J_4$, $J_5$, $J_6$)
Call ( C )
$U_t(I,J) = UU_t ( J )$
$U_t(I,J) = UU_h ( J )$
J = J+1
End While
I = I + 1
End While
J = 1
While
J <= 11
Do
I = 1
While
I <=81
Do

$TT_t$ ( I ) = U_t( I,J )
$TT_h$ ( I ) = U_h( I,J )
I = I + 1
End While
Call ( B )
$UA_t = Max_1$
$UA_h = Max_2$
J = J + 1
End While
I = 1
$SUM_t = 0$
$SSUM_t = 0$
$SUM_h = 0$
$SSUM_h = 0$
While
J <=11
Do
$SUM_t = SUM_t + UA_t$ ( 1 )
$SUM_h = SUM_h + UA_h$ ( 1 )
$SSUM_t = SSUM_t + UA_t$ (I)* Z(I)
$SSUM_h = SSUM_h + UA_h$ (I)* Z(I)
J = J + 1
End While
$U_tS = SSUM_t / SUM_t$
$U_hS = SSUM_h / SUM_h$
End Main Program

## Sub-routine to find the min- value of four values

## Procedure (A)

Compare $x_1$, $x_2$
If $x_1<x_2$
Then
Compare $x_1$, $x_3$
If $x_1<x_3$
Then
Compare $x_1$, $x_4$

If $x_1<x_4$
Then s= $x_1$
Else s=$x_4$
Else
Compare $x_3$,$x_4$
If $x_3<x_4$
Then s=$x_3$
Else s=$x_4$
Else compare $x_2$,$x_3$
If $x_2<x_3$
Then
Compare $x_2$,$x_4$
If $x_2<x_4$
Then s=$x_2$
Else s=$x_4$
Else compare $x_3$, $x_4$
If $x_3<x_4$
Then s=$x_3$
Else s=$x_4$
End (A)

## Procedure (B)

I=1
Max1=$TT_t(I)$
I=I+1
While I<=81
Do
If Max1<$TT_t(I)$
Then Max1=$TT_t(I)$
Else
I=I+1
End While
Max2=$TT_h(I)$

I=I+1
While I<=81
Do
  If
    Max1<$TT_h$(I)
Then
      Max1=$TT_h$(I)
Else
    I=I+1
End While
End (B)

## Procedure (C)

$x_1$=Table ($R_1$,$J_1$)
$x_2$=Table ($R_2$,$J_2$)
$x_3$=Table ($R_3$,$J_3$)
$x_4$=Table ($R_4$,$J_4$)
Call (A)
DOF=s
$I_1$=1
While
    $I_1$ <= 11
Do
    $T_t(I_1)$ = Table($I_1$,$J_5$)
    $I_1$=$I_1$+1
 End While
$I_2$=1
While
    $I_2$ <= 11
Do
    $T_h(I_2)$ = Table($I_1$,$J_6$)

$I_2=I_2+1$
End While
$I_1=1$
While
$I_1<=11$
Do
If DOF <= $T_t(I_1)$
Then
$UU_t(I_1)=DOF$
Else
$UU_t(I_1)=T_t(I_1)$
$I_1=I_1+1$
End While
$I_2=1$
While
$I_2<=11$
Do
If DOF <= $T_h(I_2)$
Then
$UU_h(I_2)=DOF$
Else
$UU_h(I_2)=T_h(I_2)$
$I_2=I_2+1$
End While
End (C)