Structural DesignSoft, Inc.
5151 S Howell Ave. #F,Milwaukee,WI,53154
(414) 294-4795

ENGINEERING DEPT.

Job No: S-123459

Job Title: Building : Bldg1 Revision : 0 **Sheet No:** 1

Description: Bldg1 **Made By:** Jack **CK'D By:**

Date: 01-Jan-99

```
BUILDING DATA
-------------
       WIDTH ..... =   30.000 (FT)
       LENGTH ..... =   160.00 (FT)
       FRONT EAVE HT... =    8.500 (FT)
       BACK EAVE HT.... =    8.500 (FT)
       PEAK OFFSET .... =   15.000 (FT)
       FRONT ROOF SLOPE =    0.375 /12


BUILDING CODE DATA
------------------
       BUILDING CODE .. =   UBC-97
       WIND EXPOSURE .. =    C
       SEISMIC ZONE ... =
       DEAD LOAD ..... =    2.000 (PSF)
       COLL LOAD ..... =    0.000 (PSF)
       LIVE LOAD ..... =   30.000 (PSF)
       WIND SPEED ..... =   80.000 (MPH)
       GROUND SNOW .... =   10.000 (PSF)
       ROOF SNOW ..... =    0.000 (PSF)

       DESIGN PRESSURE -  P  =  Ce Cq qs Iw

       BASIC VELOCITY PRESSURE -  qs          = 16.384(PSF)
       WIND LOAD IMPORTANCE FACTOR - Iw       = 1.0
       GUST RESPONCE FACTOR - Ce              = 1.060
       INTERNAL PRESSURE COEFF. - GCpi        = - 0.5

       WIND COEFFICIENTS:
              C1 = 0.800  C2 = -0.700  C3 = -0.700  C4 = -0.500

       LOAD COMBINATIONS:
              1 --> DEAD + LIVE
              2 --> DEAD + WIND


Design of Typ Interior Post
---------------------------
       Dead + Live   = 1.814 (kips)
       Dead + Uplift = 0.114 (kips)
       Wind Pressure = 0.000 (klf)
       Lx            = 8.469 (ft)
       Ly            = 8.469 (ft)
       Kx            = 1.000
       Ky            = 1.000

       SECTION PROPERTIES - 4x2.5 C 16 Ga
       ____________________________________
       Full Cross Section Area   (In^2) = 0.6
       Eff. Cross Section Area   (In^2) = 0.43
       Full Section MI @x-x      (In^4) = 1.6
       Full Section MI @y-y      (In^4) = 0.54
       MI for deflection @x-x    (In^4) = 1.46
       Eff. Section Modulus @x-x (In^3) = 0.69

       1. Compute Nominal Axial Capacity, Pn
```

```
      Kx*Lx/rx  = 62.232
      Ky*Ly/ry  = 107.122
      Fe1       = 25.393 ksi  (Eq C4.1-1)

      Sigma ex   = 75.238
      ro         = 2.907
      Beta       = 0.422
      Sigma et   = 846.437
      Fe2        = 71.433 ksi  (Eq C4.2-1)
      Lamda c    = 1.498     (Eq C4-4)
      Fn         = 84.190    (Eq C4-2)

      2. Check combined comp. and bending (Sec - C5.2.1)

      Alpha x     = 0.928
      Eq. - 1     = 0.090      (Eq C5.2.1-1)
      Eq. - 2     = 0.133      (Eq C5.2.1-2)


Design of Typ Exterior Post
---------------------------
      Dead + Live   = 0.400 (kips)
      Dead + Uplift = -0.236 (kips)
      Wind Pressure = 0.069 (klf)
      Lx            = 8.000 (ft)
      Ly            = 8.000 (ft)
      Kx            = 1.000
      Ky            = 1.000

      SECTION PROPERTIES - 4x2.5 C 16 Ga
      ____________________________________
      Full Cross Section Area   (In^2) = 0.6
      Eff. Cross Section Area   (In^2) = 0.43
      Full Section MI @x-x      (In^4) = 1.6
      Full Section MI @y-y      (In^4) = 0.54
      MI for deflection @x-x    (In^4) = 1.46
      Eff. Section Modulus @x-x (In^3) = 0.69

      1. Compute Nominal Axial Capacity, Pn

      Kx*Lx/rx  = 58.788
      Ky*Ly/ry  = 101.193
      Fe1       = 28.456 ksi  (Eq C4.1-1)

      Sigma ex   = 84.314
      ro         = 2.907
      Beta       = 0.422
      Sigma et   = 948.535
      Fe2        = 80.049 ksi  (Eq C4.2-1)
      Lamda c    = 1.415     (Eq C4-4)
      Fn         = 75.128    (Eq C4-2)

      2. Check combined comp. and bending (Sec - C5.2.1)

      Alpha x     = 0.986
      Eq. - 1     = 0.022      (Eq C5.2.1-1)
      Eq. - 2     = 0.029      (Eq C5.2.1-2)
```

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Job Title: Building : Bldg1 Revision : 0 **Sheet No:** 3

Description: Bldg1 **Made By:** Jack **CK'D By:**

Date: 01-Jan-99

```
Design of Typ Jamb Section
--------------------------
       Dead + Live   = 0.320 (kips)
       Dead + Uplift = -0.188 (kips)
       Wind Pressure = 0.056 (klf)
       Lx            = 8.000 (ft)
       Ly            = 8.000 (ft)
       Kx            = 1.000
       Ky            = 1.000

       SECTION PROPERTIES - 4x2.5 C 16 Ga
       ____________________________________
       Full Cross Section Area   (In^2) = 0.6
       Eff. Cross Section Area   (In^2) = 0.43
       Full Section MI @x-x      (In^4) = 1.6
       Full Section MI @y-y      (In^4) = 0.54
       MI for deflection @x-x    (In^4) = 1.46
       Eff. Section Modulus @x-x (In^3) = 0.69

       1. Compute Nominal Axial Capacity, Pn

       Kx*Lx/rx  = 58.788
       Ky*Ly/ry  = 101.193
       Fe1       = 28.456 ksi  (Eq C4.1-1)

       Sigma ex   = 84.314
       ro         = 2.907
       Beta       = 0.422
       Sigma et   = 948.535
       Fe2        = 80.049 ksi  (Eq C4.2-1)
       Lamda c    = 1.415     (Eq C4-4)
       Fn         = 75.128    (Eq C4-2)

       2. Check combined comp. and bending (Sec - C5.2.1)

       Alpha x     = 0.989
       Eq. - 1     = 0.018      (Eq C5.2.1-1)
       Eq. - 2     = 0.024      (Eq C5.2.1-2)



Design of Typ Header Section
----------------------------
       Wind Pressure = 0.056 (klf)
       Lx            = 8.000 (ft)
       Ly            = 8.000 (ft)
       Kx            = 1.000
       Ky            = 1.000

       SECTION PROPERTIES - 4x2.5 C 16 Ga
       ____________________________________
       Full Cross Section Area   (In^2) = 0.6
       Eff. Cross Section Area   (In^2) = 0.43
       Full Section MI @x-x      (In^4) = 1.6
       Full Section MI @y-y      (In^4) = 0.54
       MI for deflection @x-x    (In^4) = 1.46
       Eff. Section Modulus @x-x (In^3) = 0.69
```

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Description: Bldg1 **Made By:** Jack **CK'D By:**

Date: 01-Jan-99

```
      1. Compute Nominal Axial Capacity, Pn

      Kx*Lx/rx  = 58.788
      Ky*Ly/ry  = 101.193
      Fe1       = 28.456 ksi  (Eq C4.1-1)

      Sigma ex   = 84.314
      ro         = 2.907
      Beta       = 0.422
      Sigma et   = 948.535
      Fe2        = 80.049 ksi  (Eq C4.2-1)
      Lamda c    = 1.415     (Eq C4-4)
      Fn         = 75.128    (Eq C4-2)

      2. Check combined comp. and bending (Sec - C5.2.1)

      Alpha x     = 1.000
      Eq. - 1     = 0.000      (Eq C5.2.1-1)
      Eq. - 2     = 0.000      (Eq C5.2.1-2)



Design of Typ Girt Section
--------------------------
      Wind Pressure = 0.022 (klf)
      Lx            = 10.000 (ft)
      Ly            = 1.000 (ft)
      Kx            = 1.000
      Ky            = 1.000

      SECTION PROPERTIES - 4x2.5 C 16 Ga
      ____________________________________
      Full Cross Section Area   (In^2) = 0.6
      Eff. Cross Section Area   (In^2) = 0.43
      Full Section MI @x-x      (In^4) = 1.6
      Full Section MI @y-y      (In^4) = 0.54
      MI for deflection @x-x    (In^4) = 1.46
      Eff. Section Modulus @x-x (In^3) = 0.69

      1. Compute Nominal Axial Capacity, Pn

      Kx*Lx/rx  = 73.485
      Ky*Ly/ry  = 12.649
      Fe1       = 53.961 ksi  (Eq C4.1-1)

      Sigma ex   = 53.961
      ro         = 2.907
      Beta       = 0.422
      Sigma et   = 60706.240
      Fe2        = 53.931 ksi  (Eq C4.2-1)
      Lamda c    = 1.028     (Eq C4-4)
      Fn         = 39.641    (Eq C4-2)

      2. Check combined comp. and bending (Sec - C5.2.1)

      Alpha x     = 1.000
      Eq. - 1     = 0.000      (Eq C5.2.1-1)
      Eq. - 2     = 0.000      (Eq C5.2.1-2)
```

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Job Title: Building : Bldg1 Revision : 0 **Sheet No:** 5

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```
Diaphram Bracing
----------------
       Longitudinal Wind Load = Hor. Design Wind Pressure*Bldg Width*Mean Roof Ht/2.0
                              = 13.894 psf*30.000 ft*0.000 ft/2.0
                              = 0.000 kip
       Longitudinal Seismic Load = 0.000 kip

       Wind Load Governs over Seismic Load

       Diaphram Strength of StormProofPanel 29 Ga Galvalume Plus= 0.100 klf

       Required Longitudinal Wall = Longitudinal Load/Diaphram Strength of Panel
                                  = 0.000 k/0.10 klf
                                  = 0.00 ft


       Lateral Wind Load = Hor. Design Wind Pressure*Bldg Length*Mean Roof Ht/2.0
                         = 13.894 psf*160.000 ft*0.000 ft/2.0
                         = 0.000 kip
       Lateral Seismic Load = 0.000 kip

       Wind Load Governs over Seismic Load

       Required Lateral Partition Length = Lateral Load/Diaphram Strength of Panel
                                         = 0.000 k/0.10 klf
                                         = 0.00 ft
```