



PRODUCT & APPLICATION ENGINEERING, INC.  
250 INTERNATIONAL PARKWAY  
SUITE 250  
HEATHROW, FLORIDA 32746  
PHONE 407 805-0365 FAX 407 805-0366

CLIENT: \_\_\_\_\_  
PROJECT: \_\_\_\_\_  
PROJECT NO: \_\_\_\_\_  
REPORT NO: \_\_\_\_\_  
PREPARED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_  
SHEET NO: \_\_\_\_\_ (1)

**SCOPE:** PROVIDE SAMPLE ANCHOR CALCULATIONS FOR INSTALLATION OF  
WINDOWS IN A MASONRY STRUCTURE WITH A ONE BY WOOD BUCK.

**ANCHOR:**

TYPE: "TAPCON TYPE" CONCRETE SCREW ANCHOR

SIZE: 3/16 IN. DIA.

EMBEDMENT: ANCHORS MUST BE OF SUFFICIENT LENGTH TO ACHIEVE  
MINIMUM EMBEDMENT OF 1-1/4 IN.

MATERIAL: CALCULATIONS USE C.M.U., WORST CASE, TO QUALIFY  
MATERIALS OF GREATER STRENGTH.

PUBLISHED ULTIMATE LOAD CAPACITY IN SHEAR: 1020.0 # / ANCHOR

LOAD FACTORS:

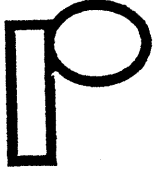
SAFETY FACTOR: 4.0

ALLOWABLE WORKING LOAD / ANCHOR:

=  $1020.0 / 4.0 = 255.0$  # / ANCHOR

MM

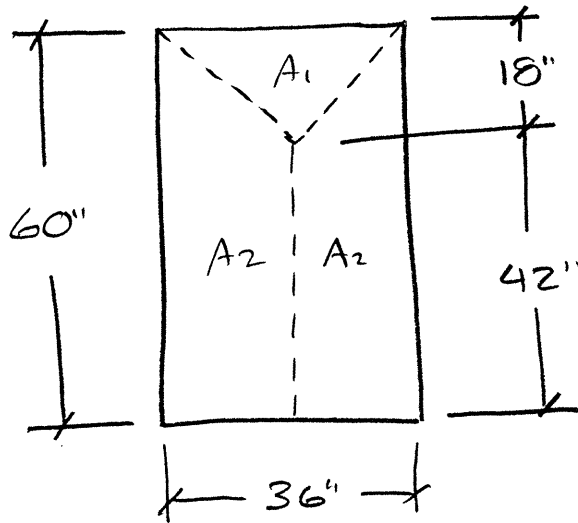
04-13-02



PRODUCT & APPLICATION ENGINEERING, INC.  
250 INTERNATIONAL PARKWAY  
SUITE 250  
HEATHROW, FLORIDA 32746  
PHONE 407 805-0365 FAX 407 805-0366

CLIENT: \_\_\_\_\_  
PROJECT: \_\_\_\_\_  
PROJECT NO: \_\_\_\_\_  
REPORT NO: \_\_\_\_\_  
PREPARED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_  
SHEET NO: 2

**LOAD DISTRIBUTION:**



**LOAD AREAS:**

$$A_1 = 18.0^2 / 144 = 2.25 \text{ FT}^2$$

$$A_2 = A_1 + 18.0 (42.0) / 144 = 7.5 \text{ FT}^2$$

**DESIGN PRESSURE: 40.0 PSF**

**TOTAL LOAD:**

$$W_1 = 2.25 (40.0) = 90.0 \text{ PSF}$$

$$W_2 = 7.5 (40.0) = 300.0 \text{ PSF}$$

**ANCHOR QUANTITY REQ'D:**

$$@A_1 = 90.0 / 255.0 = 0.35 \quad \text{USE ONE ANCHOR MINIMUM}$$

$$@A_2 = 300.0 / 255.0 = 1.18 \quad \text{USE TWO ANCHORS MINIMUM}$$

*MJA*  
04-1302