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**Wind Load Check for  
Florida Building Code Requirements  
Porter Model No. 00175340 FL**

**Structural Calculations**

Book 1 of 1  
Calculation Release #1

Prepared for  
Porter Athletic Equipment Company  
Broadview, IL



Larson Engineering, Inc.  
Naperville, Illinois  
Project Number 21070279.000  
Florida COA Co. 00009803  
John J. Pastore  
Registration No. 32373



CODE: FLORIDA BUILDING CODE  
 ASCE 7-05

WIND SPEED  $V = 130$  MPH  
 $I = 0.177$

- CONSIDER AS SOLID SIGN (6.5.14)

$$F = q_h G C_p A_s$$

$$A_s = (4.5)(3.2') + (9.7)(0.375') = 18.0 \text{ FT}^2$$

$$C_p = 1.80 \quad [S_h = 0.3, E/B = 1.4] \quad (\text{fig. 6.20})$$

$$G = 0.85$$

$$q_h = 0.00256 (K_u)(K_{zt})(K_1) V^2 I$$

$$= 0.00256 (0.85)(1.0)(0.85)(130)^2 (0.177)$$

$$= 24 \text{ PSF}$$

$$K_u = 0.85$$

$$K_{zt} = 1.0$$

$$K_1 = 0.85$$

$$F = (24)(0.85)(1.80)(18) = 661 \#$$

- FORCE ON POLE

$$\text{MOMENT @ BASE } M = (661 \#)(11.19') = 7396 \text{ FT-LB}$$

POLE - 4" Nom. SCH. 80 A106 GR B

$$S = 4.27 \text{ IN}^3 \quad A = 4.41 \text{ IN}^2$$

$$F_b = \frac{(7396)(12)}{4.27} = 20,785 \text{ PSI}$$

$$F_b = 0.66 F_y = (0.66)(35000) = 23,100 \text{ PSI}$$

$$F_b < F_y \quad \underline{\text{OK}}$$

4"  $\phi$ , SCHED. 80, ASTM A106 GR B

- FORCE ON CONNECTION

$$F = \pm 661 \#$$

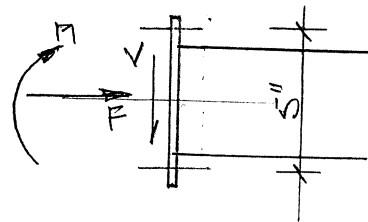
$$M = \pm (661 \#)(17.75 \text{ IN}) = 11,732 \text{ IN-LB}$$

CONSERVATIVELY/ TAKE FORCE ON BOLTS AS:

$$661 + \frac{11732}{5} = 3007 \# / 2 = 1504 \# / \text{BOLT}$$

$$V = 75 \#$$

CAPACITY  $1/2" \phi$  A307 BOLT = 4000# TENSION  
 2000# SHEAR





FOR COMBINED STRESSES

$$F_T = \frac{1504}{0.12} = 7520 \text{ PSI} \quad R = \frac{75}{0.20} = 375 \text{ PSI}$$

$$F_T = 26 - 1.8(0.375) = 25.325 \leq \underline{\underline{20}} \text{ ksi}$$

BELTS OK.

• 1/4" R (AVG. MOMENT)

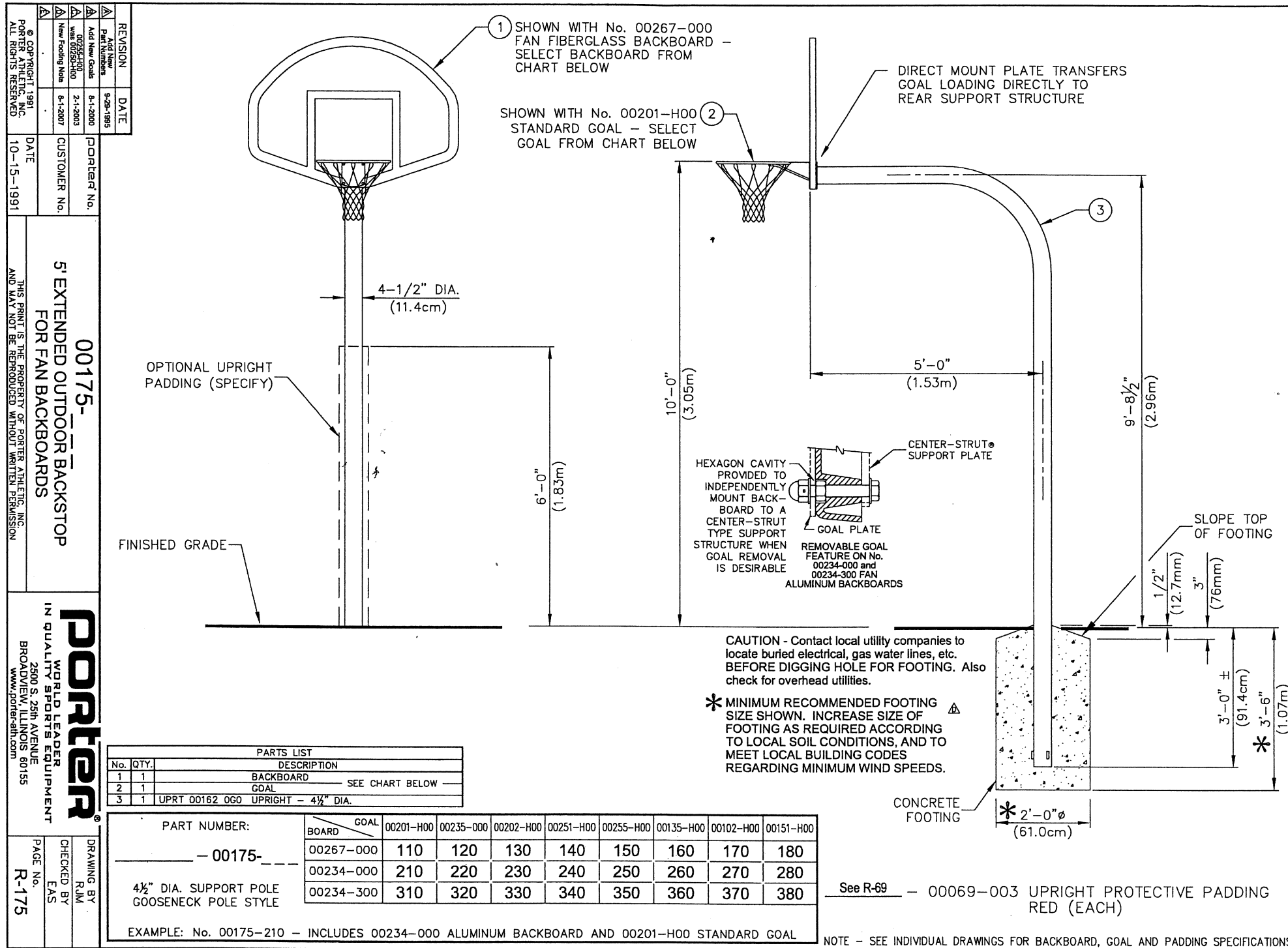
$$P = 8008 \# \quad e = 2.5 - 2.25 = 0.25''$$

$$M = 752''\#$$

$$S = \frac{(7.6)(0.25)^2}{6} = 0.073 \text{ IN}^3$$

$$F_T = \frac{752}{0.073} = 10,313 \text{ PSI} < F_b = 27 \text{ ksi} = 0.75 F_y$$

CAN. R OK.



| REVISION | DATE      | DESCRIPTION      |
|----------|-----------|------------------|
| 1        | 8-28-1995 | Initial Release  |
| 2        | 8-1-2000  | Add New Goals    |
| 3        | 3-1-2003  | 00255-H00        |
| 4        | 8-1-2007  | New Footing Note |

|              |            |
|--------------|------------|
| DATE         | 10-15-1991 |
| CUSTOMER No. |            |
| PORTER No.   |            |

**00175-5' EXTENDED OUTDOOR BACKSTOP FOR FAN BACKBOARDS**

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**PORTER**  
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2800 S. 25th AVENUE  
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EAS  
PAGE No.  
R-175

| No. | QTY. | DESCRIPTION                          |
|-----|------|--------------------------------------|
| 1   | 1    | BACKBOARD SEE CHART BELOW            |
| 2   | 1    | GOAL                                 |
| 3   | 1    | UPRT 00162 0G0 UPRIGHT - 4 1/2" DIA. |

| PART NUMBER: | BOARD     | GOAL | 00201-H00 | 00235-000 | 00202-H00 | 00251-H00 | 00255-H00 | 00135-H00 | 00102-H00 | 00151-H00 |
|--------------|-----------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| - 00175-     | 00267-000 | 110  | 120       | 130       | 140       | 150       | 160       | 170       | 180       |           |
|              | 00234-000 | 210  | 220       | 230       | 240       | 250       | 260       | 270       | 280       |           |
|              | 00234-300 | 310  | 320       | 330       | 340       | 350       | 360       | 370       | 380       |           |

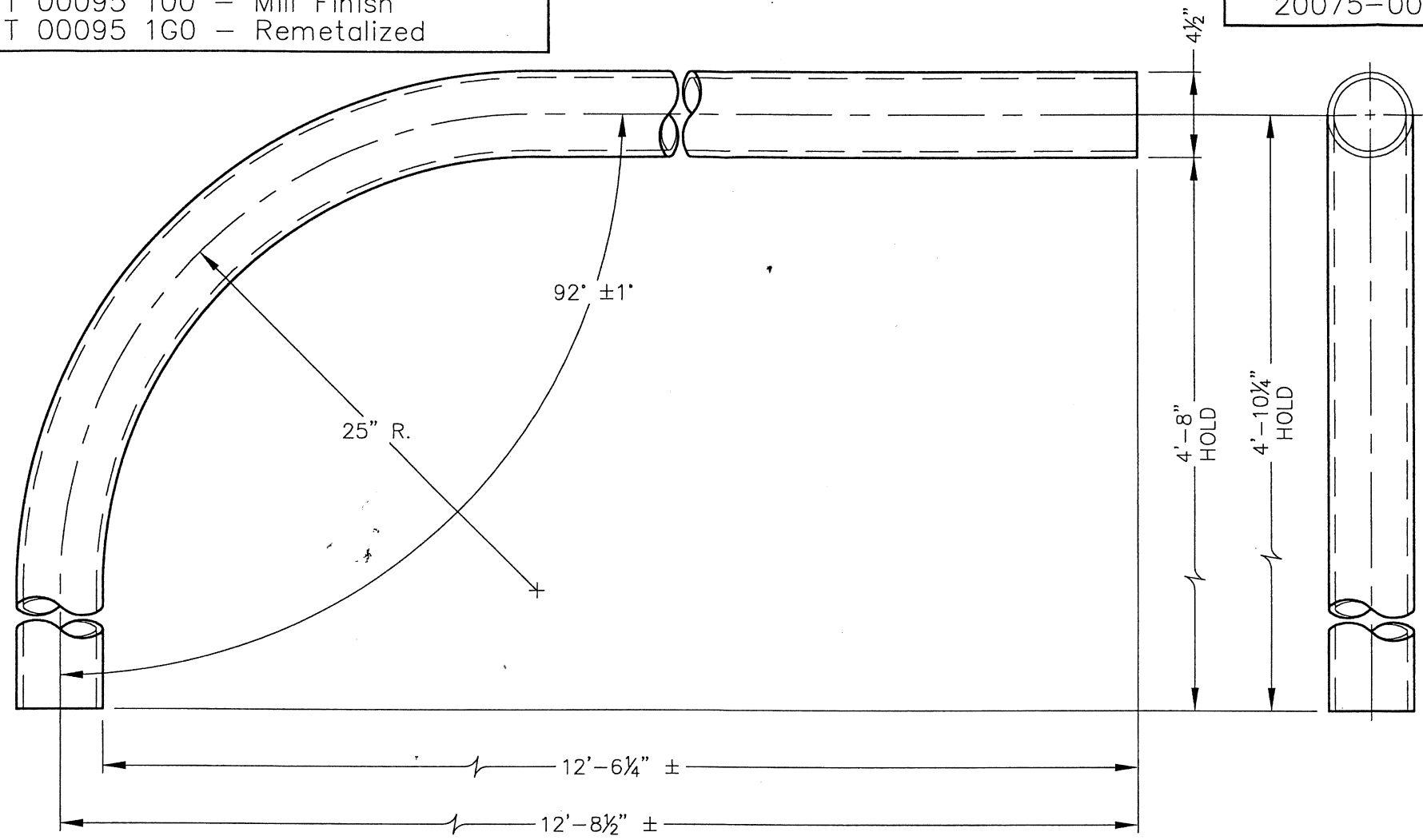
EXAMPLE: No. 00175-210 - INCLUDES 00234-000 ALUMINUM BACKBOARD AND 00201-H00 STANDARD GOAL

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PART No.  
 UPRT 00095 100 - Mill Finish  
 UPRT 00095 1G0 - Remetalized

DRAWING No.  
 20075-004



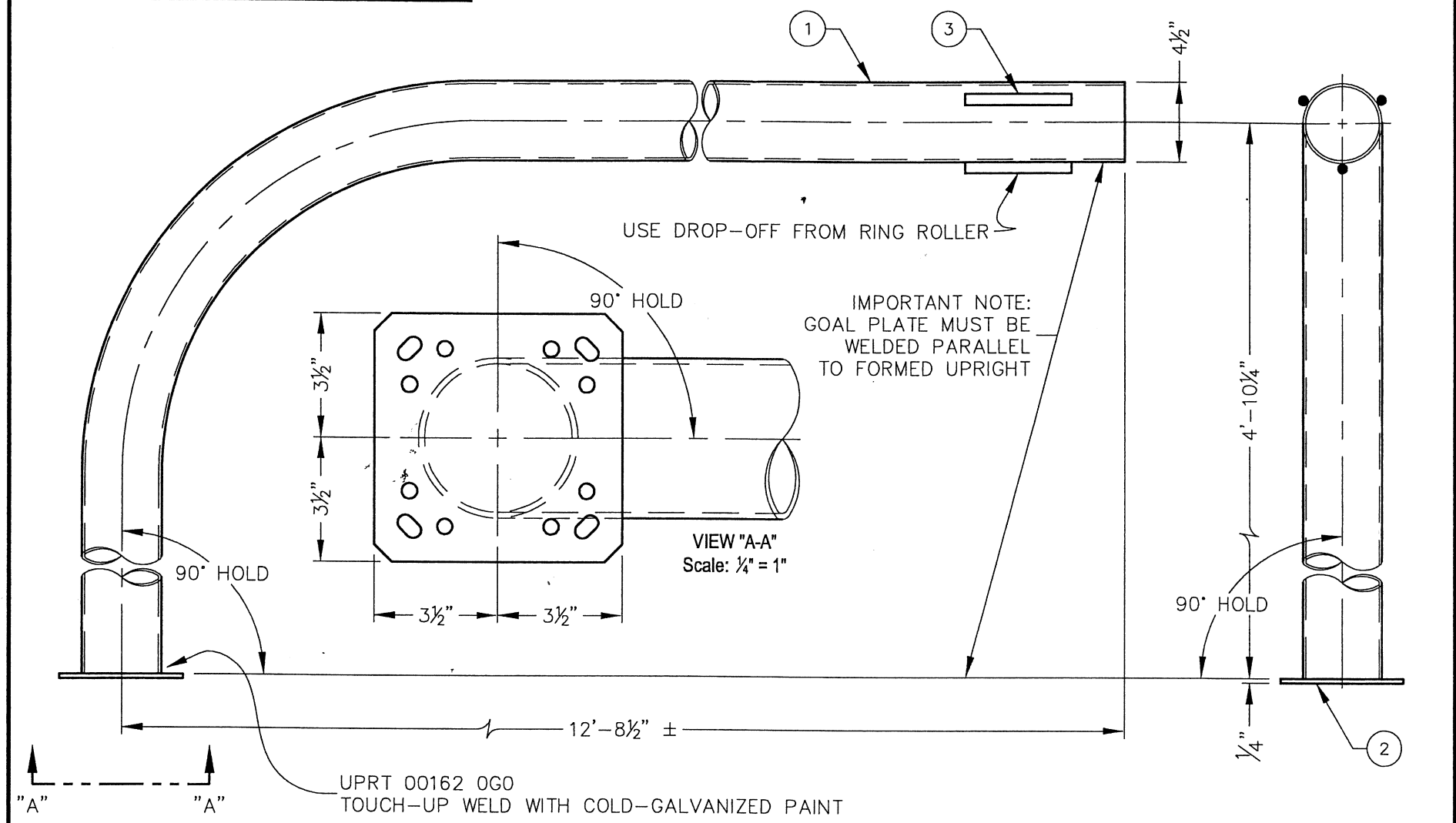
|   |          |      |  |   |           |  |  |
|---|----------|------|--|---|-----------|--|--|
| FINISH ~  |          |      |  | <b>FORMED UPRIGHT<br/>5' Extended Backstops</b>   |           |  |  |
| MATERIAL 4" Sch. 80 ASTM A106B SEAMLESS GALVANIZED PIPE x 16'-8" ± Lg.                                    |          |      |  |   |           |  |  |
| SYM   | REVISION | DATE | BY   | <b>porter</b> WORLD LEADER IN QUALITY SPORTS EQUIPMENT<br>2500 S. 25th Avenue, Broadview, IL. 60155<br>© COPYRIGHT 2007 PORTER ATHLETIC, INC. ALL RIGHTS RESERVED<br>DWG. BY: RJM 8-14-2007 DWG. No. 20075-004 REV. .<br>CHK. BY: SCALE: 1/8" = 1" R&D REF. No. DATE REV. |           |  |  |
| △A  |          |      |  |   |           |  |  |
| △B  |          |      |  |   |           |  |  |
| △C  |          |      |  |   |           |  |  |
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*J. Y. P. H.*

PART No.  
 UPRT 00162 0G0 - Galvanized  
 UPRT 00162 012 - Powder-Coat Black

DRAWING No.  
 20075-100  
 REV.  
 C



| No. |      | QTY.                     |   | DESCRIPTION |  | SYMBOL |  | REVISION                          |  | DATE      |     | BY |  |
|-----|------|--------------------------|---|-------------|--|--------|--|-----------------------------------|--|-----------|-----|----|--|
| 3   | 1.50 | ROND 00001 000           | 5/8" Ø BAR - 3 Pcs. @ 6" (USE DROP-OFF WHEN POSSIBLE) |             |  |        |  |                                   |  |           |     |    |  |
| 2   | 1    | PLTE 00093 1G0 20075-003 | GOAL PLATE  |             |  | A      |  | ADD 5/8" LUGS                     |  | 6-19-1990 | RJM |    |  |
| 1   | 1    | UPRT 00095 20075-001     | FORMED UPRIGHT  |             |  | B      |  | PLTE 00093 1G0 Was PLTE 00093 0G0 |  | 2-11-2005 | RJM |    |  |
|     |      |                          |   |             |  | C      |  | Add Black Upright UPRT 00162 012  |  | 4-30-2007 | RJM |    |  |

**UPRIGHT WELDMENT**  
 For No. 175 Backstops  
 In Concrete Footing

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DWG. BY: JRG DATE: 12-15-1986 SCALE: 1/8" = 1"

LIMITS IF NOT SPECIFIED:  
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 ANGULAR: ± 1°

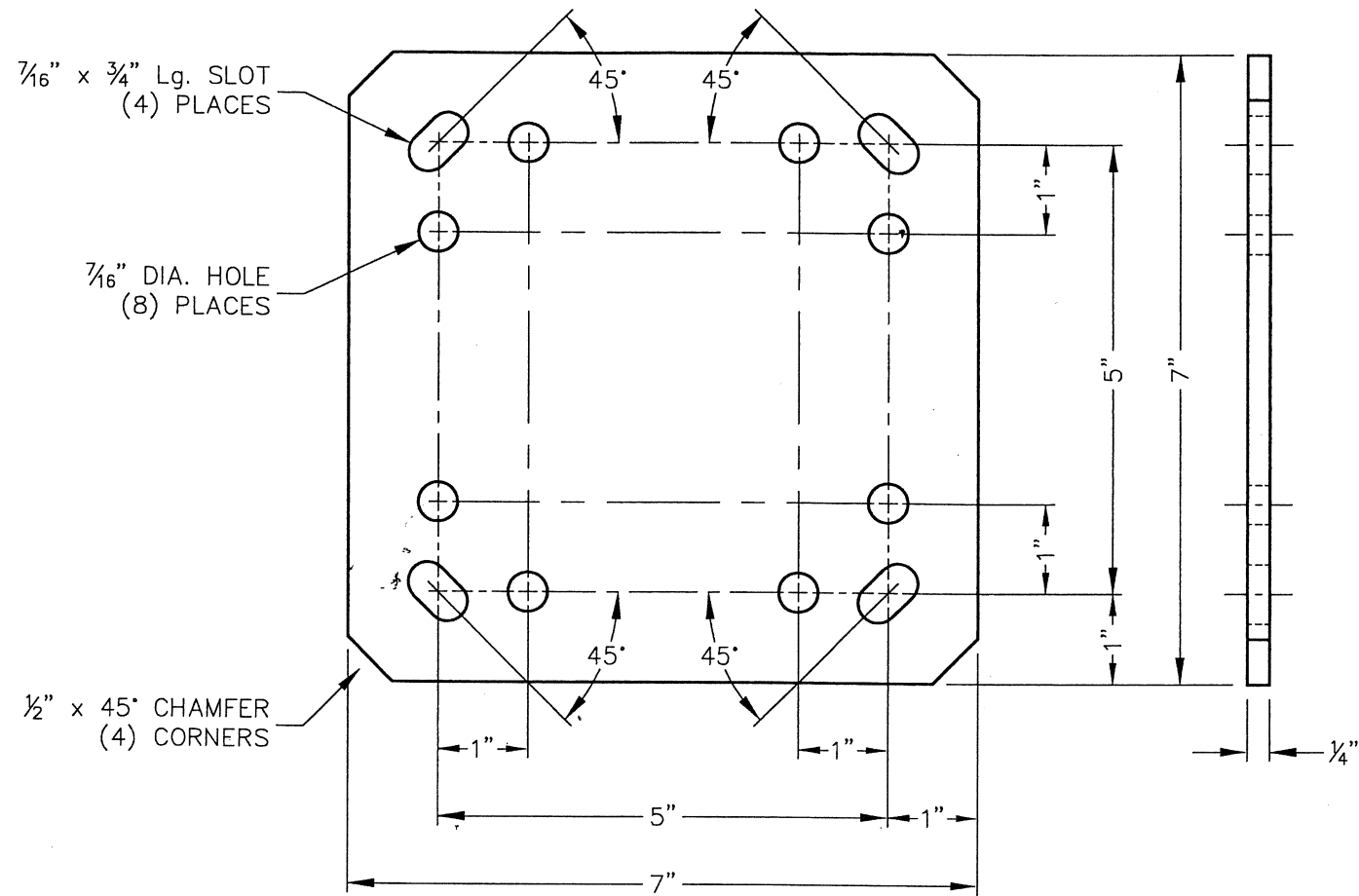
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*J. Y. A.*

PART No.  
PLTE 00093 1G0

DRAWING No.  
20075-003

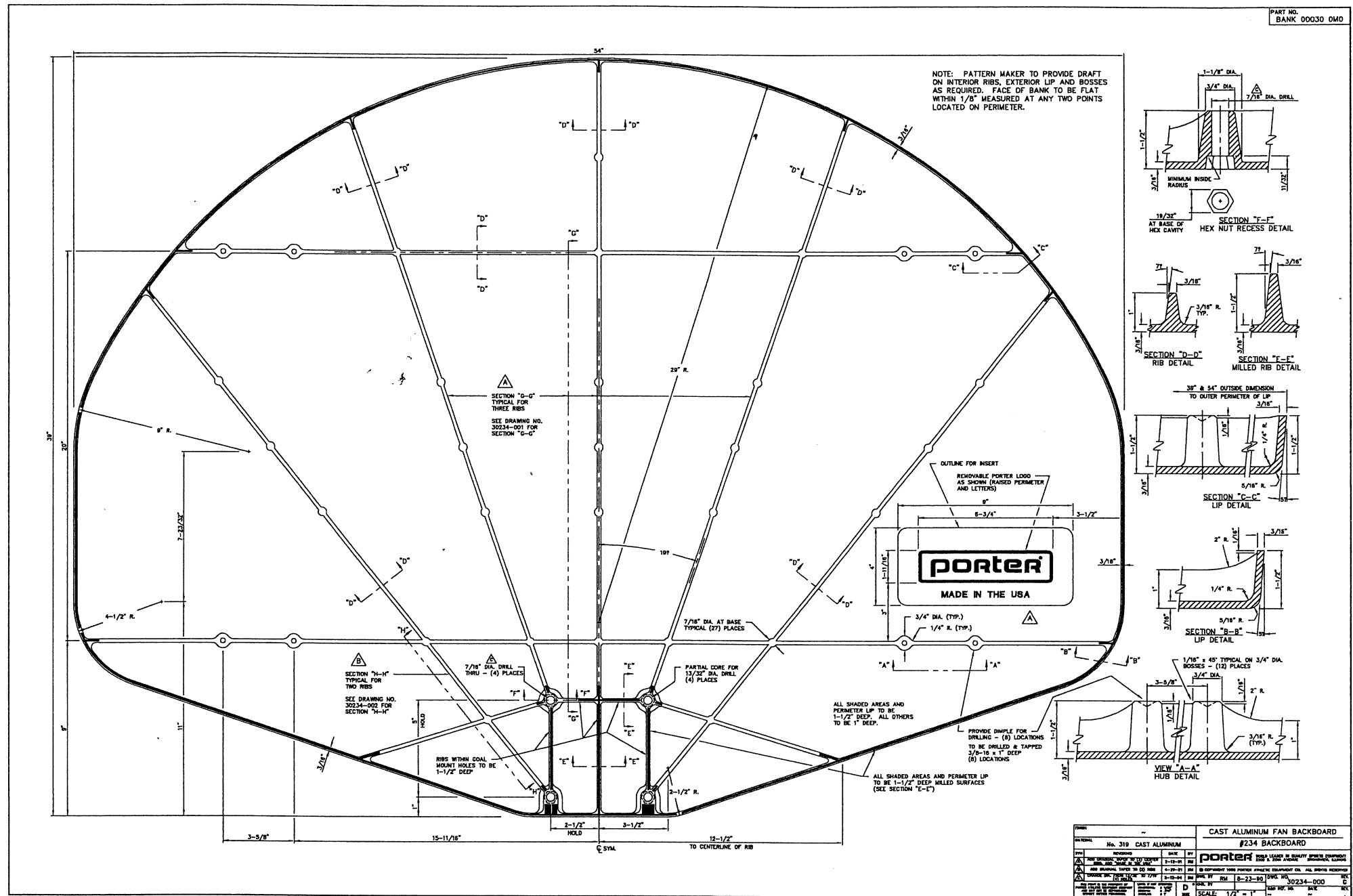


NOTE - NO SHARP EDGES OR CORNERS ALLOWED

|   |          |                              |    |  |           |           |           |                              |   |
|---|----------|------------------------------|----|--|-----------|-----------|-----------|------------------------------|---|
| FINISH  |          | GALVANIZED OR ZINC-PLATED    |    | GOAL PLATE   |           |           |           |                              |   |
| MATERIAL  |          | 1/4" x 7" H.R. FLAT x 7" Lg. |    | OUTDOOR BACKSTOPS  |           |           |           |                              |   |
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| A   |          |                              |    |  |           |           |           |                              |   |
| B   |          |                              |    |  |           |           |           |                              |   |
| C   |          |                              |    | DWG. BY: RJM   | 2-11-2005 | DWG. No.  | 20075-003 | REV.                         | . |
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|   |          |                              |    | R&D REF. No.   |           | DATE      |           | REV.                         |   |

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*J. M. [Signature]*



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*P. M. Pitt*