

Plant: Beaver Dam

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P1 **CVT**

ROOF - EASI-SET BUILDING - RP-04 - 145" x 216"

[illegible]

Plant: Beaver Dam

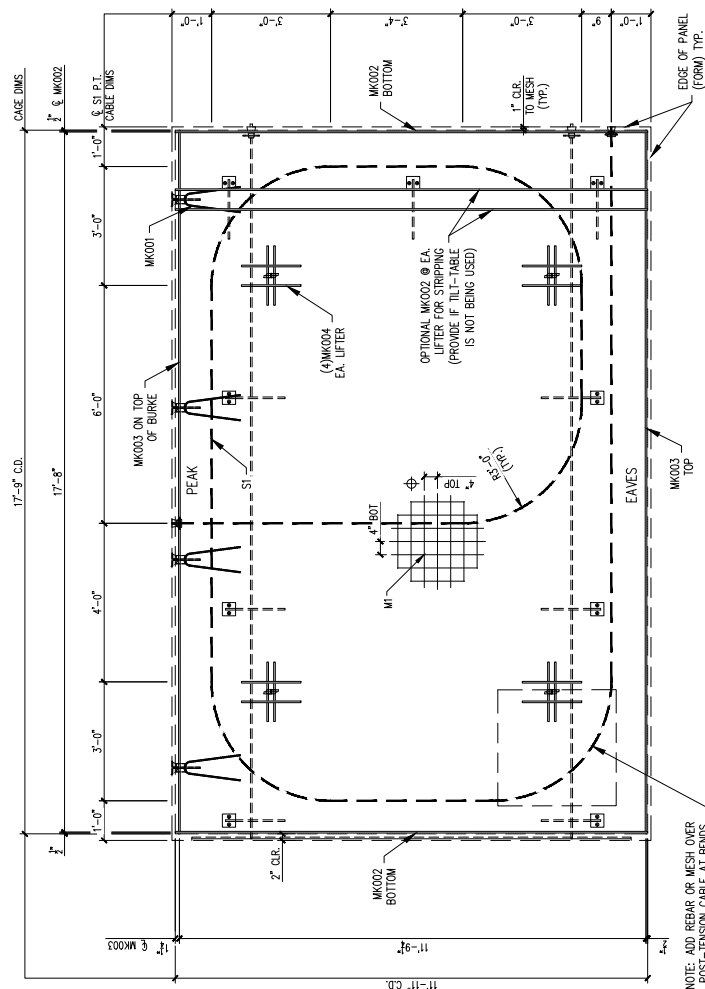
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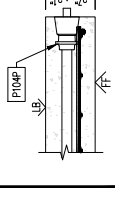
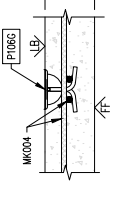
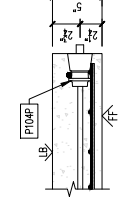
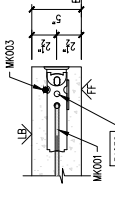
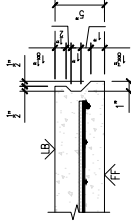
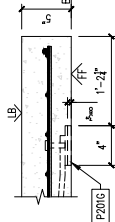
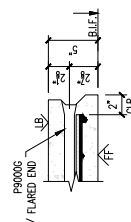
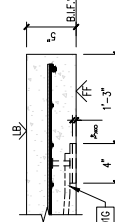
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[illegible]

SHOP NOTE: DIMENSIONS PROVIDED ARE PULLED FROM EDGE OF CAGE TO CENTERLINE OF REBAR AND TO CENTER OF REBAR TO CENTER OF REBAR (EXCEPT PT CABLE LOCATION)



NOTE: ADD REBAR OR MESH OVER POST-TENSION CABLE AT BENDS, SANDWICHING BETWEEN REINFORCING - USED AS CONTAINMENT STEEL



MESSAGE CENTER

1. REFER TO DETAILS FOR REINFORCEMENT/CABLE PLACEMENT
2. SUPPLEMENTAL STEEL FOR STRIPPING AND HANDLING MAY BE ADDED AS REQUIRED.

CHECKED BY: _____

APPROVED BY: _____

DATE:

Job Name: 25-3470P9 CCHS Precast Building
Job Location: 5185 Fort Campbell BLVD
Contractor: Christian County Board of Education C/O A&K Construction

Plant: Beaver Dam
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Tech: J. Coppage
PC: E. Bradley



Structure ID: RP-04 - Roof Panel 4

P1 CVT

ROOF - EASI-SET BUILDING - RP-04 - 145" x 216"



PT Check for Roof Panels RP-03/RP-04 (PCI MNL)

Material Data

(7) Wire lo-lax Strand - ASTM A416

Φ_{ps} 0.500 in,

A= 0.153 in²

E= 28500000 psi

fpu= 270 ksi

Strand Length 784 in

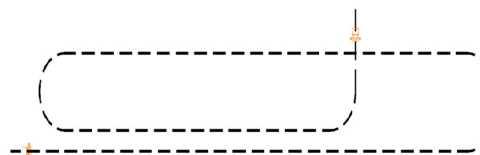
Assume (Info supplied by strand manufacturer)

k= 0.0007 Wobble Friction Coeff.

μ = 0.05 Curvature friction coeff. (Initial tension of 3,000 lbs)

Strand is to be stressed 70% of ultimate

= 28917 lbs



Cable Configuration

Adjustments to tensioning

1) Dead end anchor wedge seating loss

~ Expected to be 1/8 in

2) Live end anchor wedge seating loss

~ Expected to be 1/8 in, recommend over pull 1/8"

3) Elastic Shortening

Neglect for this pnl

4) Friction Loss

Additional force to overcome frictional forces between strand and sheathing

Tensioning Computations

$$\text{Basic Elongation} = \frac{(\text{Force required beyond initial tension}) (\text{Length of strand between anchorages})}{(\text{Area of strand}) (\text{Modulus of Elasticity})}$$
$$= 4.66 \text{ in}$$

Adjustments

a) Dead end anchor wedge seating: Add 1/8" to elong. No force adjustment req'd

Add 1/8 in

b) Live end seating: over pull by 1/8"

1/8 in

Force adjustment $t = 695 \text{ lbs lbs}$ $\alpha = \text{curvature} = \pi(2.5) = 7.85 \text{ radians}$

$$\text{c) Friction losses} \quad \frac{PD}{PS} = e^{-(kL + \mu\alpha)}$$

= 0.645

Avg. strand force = 0.823 17.75% Loss

Recommend sequential jacking at both ends of the tendon be used to reduce the overstressing the strand at the live end

Friction loss at mid-point of tendon

$$\frac{PD}{PS} = e^{\frac{-(kL + \mu\alpha)}{2}}$$

= 0.803

Avg. strand force over

half of tendon = 0.902 9.84% Loss

Total force and elongation at live end must be increased to compensate for friction losses

Elong. Adjustment = 0.459 in

Force Adjustment = 2846 lbs

Total Force Required = 32458 lbs **OK**

Elongation Summary:

Gross Theoretical Elongation			
Basic Elongation	4.66 in		
Dead End Seating Loss	0.125 in		
Live End Seating Loss	0.125 in		
Friction Losses	0.459 in		
Total Elongation	5.37 in		
Rounded	5 6/16 in		
Tolerance limits	-7.0%	4.99 in	5 in
	+7.0%	5.74 in	5 12/16 in