



Job Name: 25-3470P8 CCHS Precast Building
Job Location: 5185 Fort Campbell BLVD
Contractor: Christian County Board of Education C/O A&K Construction

Plant: Beaver Dam
9/10/2026 9:57:18 AM

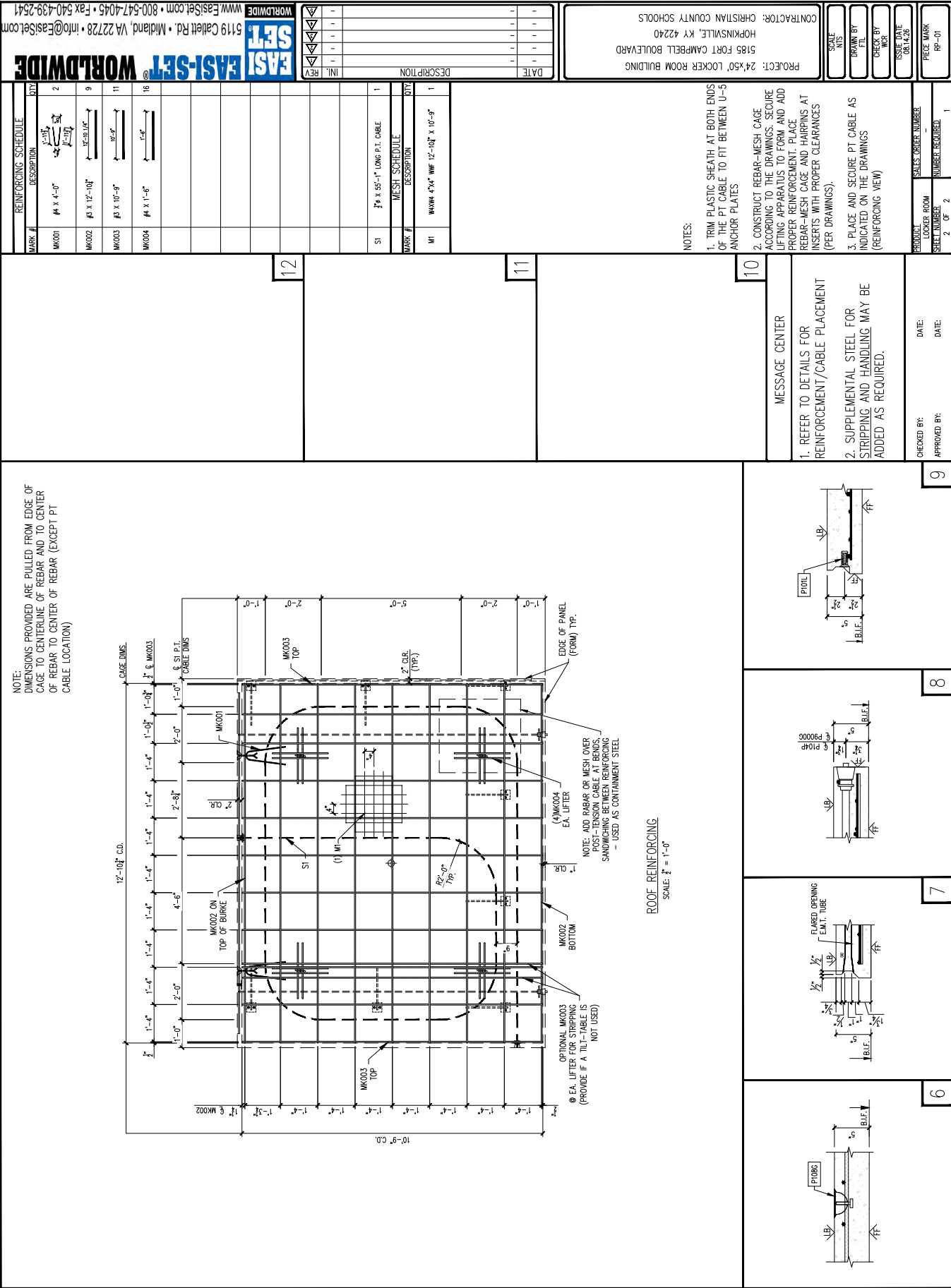
Tech: J. Coppage
PC: E. Bradley



Structure ID: RP-01 - Roof Panel 1

P1 CVT

ROOF - EASI-SET BUILDING - RP-01 - 132" x 158"



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PT Check for RP-01/02 (PCI MNL - 116)

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 625 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

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

= 3.71 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 = 872 lbs lbs α = curvature = $\pi(2.5)$ 7.85 radians

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

= 0.651

Avg. strand force = 0.826 17.45% 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

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

= 0.807

Avg. strand force over

half of tendon = 0.903 9.66% Loss

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

Elong. Adjustment = 0.359 in

Force Adjustment = 2792 lbs

Total Force Required = 32581 lbs **OK**

Elongation Summary:

Gross Theoretical Elongation			
Basic Elongation		3.71 in	
Dead End Seating Loss		0.125 in	
Live End Seating Loss		0.125 in	
Friction Losses		0.359 in	
Total Elongation		4.32 in	
Rounded	4	5/16 in	
Tolerance limits	-7.0%	4.02 in	4 in
	+7.0%	4.63 in	4 10/16 in