Detail of inside rafters

$a = .6570'$
$b = .0219'$
$c = .5000'$
$d = .5000'$
$e = 6.000'$, $e^2 = 36.000$

$(a-b) = .6351$, $(a-b)^2 = \log^{-1} 9.60568-10 = .40335$
$(d-c) = 0$

$2(a-b)(d-c) = 0$
$4(a-b)^2(d-c)^2 = 0$
$-4[(a-b)^2+e^2][(d-c)^2-e^2] = 4 \cdot 36.4034 \cdot 36.0000$

$= \log^{-1} 3.71950$
$\log^{-1} 1.85975$ $72.402 = \log^{-1} 9.99758-10 = \cos^{-1}\theta$
$2[(a-b)^2+e^2] = 72.807$

$\theta = 6^\circ 3'$

$\cos\theta = .99443 = \log^{-1} 9.99758-10$
$\sin\theta = .10540 = \log^{-1} 9.02283-10$
$\tan\theta = .10599 = \log^{-1} 9.02525-10$
$1/\cos\theta = 1.0056 = \log^{-1} .00242$

$d \tan\theta = .0309'$ where $d = 3\frac{1}{2}"$

detail of inside rafters

Feet radius	ℓ	$e \sin\theta$	b	$(a-b)\cos\theta$	c
1.25	6.0	.63240	.0219	.63157	.50083
2	5.25	.55335	.0500	.60363	.44972
3	4.25	.44795	.1125	.59148	.40647
4	3.25	.34255	.2000	.95447	.38808
5	2.25	.23715	.3125	.31258	.39457
6	1.25	.13175	.4500	.20590	.42585
7	.25	.02635	.6125	.04453	.48182
7.25	0	0	.6570	0	.50000

c	ℓ	$e/\cos\theta$	$(\ell-c)\tan\theta$	ℓ
6 1/8"	6' 3/8"	6.0335	-.0001	6.0334
5 3/8"	5' 3 7/16"	5.2794	+.0053	5.2847
4 7/8"	4' 3 7/16"	4.2738	.0099	4.2837
4 5/8"	3' 3 3/8"	3.2682	.0119	3.2801
4 3/4"	2' 3 5/16"	2.2626	.0112	2.2738
5 1/8"	1' 3 3/16"	1.2570	.0079	1.2649
5 13/16"	3 1/16"	.2514	.0019	.2533
6"	0	0	0	0