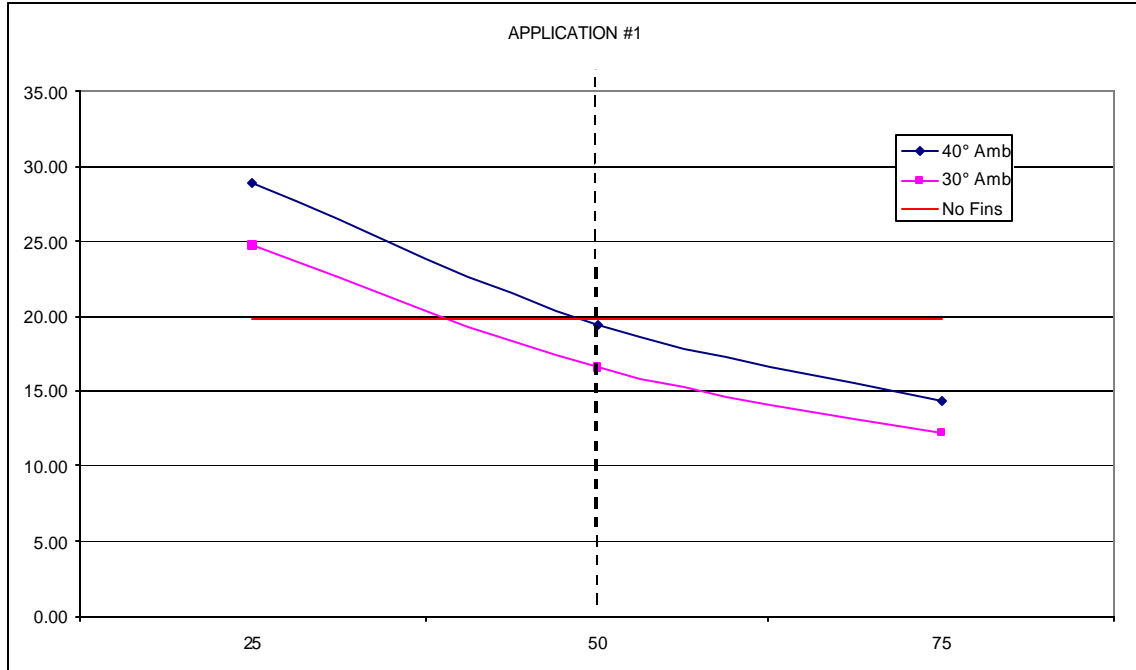


## GRAPHICAL PRESENTATION OF THERMAL CALCULATION RESULTS [Application 1, Extruded Wedge LED SSL.]



The graphical presentation of the thermal calculations allows a ready comparison and understanding of the sensitivities of the several variables plotted. The two example applications differed only in the total impact of the conductive temperature gradient. Application #1 was the smaller of the two conductive gradients presented [1.2°C]. The wattage and other variables were kept as constant application requirements. The impact of the natural convection air flow rate is the primary driver in the defining of the required convective fin surface area. Natural convection is where the only energy for air movement comes from the fin surface heating of the adjacent air to create a buoyancy and consequent mostly a vertical air movement away. Optimum natural convection air flow at sea level conditions is about 75 linear feet per minute [lfm]. Our design point is a compromise at 50 lfm.

The secondary driver is the ambient temperature and the design altitude for the application. We have selected a design point of 8,000' altitude because the vast majority of lighting applications are at elevations below this level. It is a conservative choice that will satisfy the general marketplace.

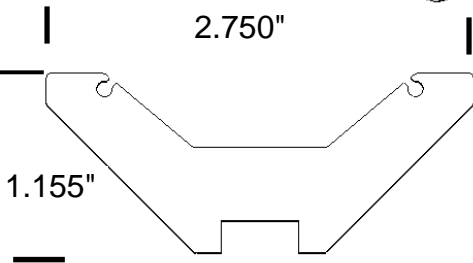
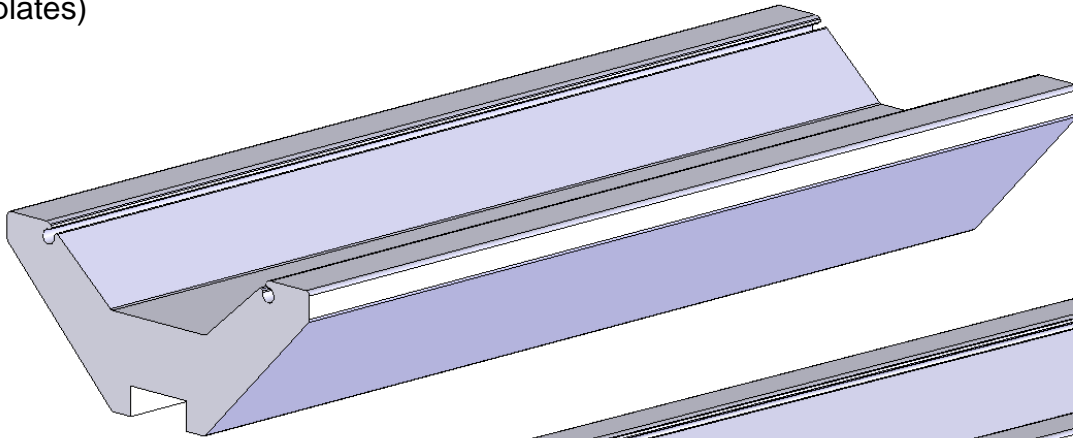
The light is for an under cabinet design that has the same extrusion modified with the addition of a radial folded fin set applied to one side when mounted in close proximity to a back wall as shown in the product sketch.

FLOW LENGTH		1.35	1.35	1.35	1.35
PERFORMANCE FACTOR @ FLOW LENGTH		111.49	111.49	111.49	111.49
TMAX CASE		91.9	95.8	100.0	104.7
TMAX AMBIENT		40.0	40.0	40.0	40.0
INTERFACE DT insert material		1.20	1.20	1.20	1.20
HEAT LOAD (watts)		9	9	9	9
AIRFLOW RATE (lfm)		50	50	50	50
SLOTTING (boundary film control)	if none 1	1	1	1	1
FULL DUCTING (correction factor)	if none 1	1	1	1	1
ALTITUDE (maximum!!) ft. (correction factor)		sea level	4000	8000	12000
?sa	?	5.6357	6.0667	6.5333	7.0556
?sa @ ALTITUDE	?	5.6357	5.6378	5.6304	5.6261
<b>REQUIRED SEA</b>		<b>19.78</b>	<b>19.78</b>	<b>19.80</b>	<b>19.82</b>
<b>AVAILABLE SEA</b>		<b>18.22</b>	<b>18.22</b>	<b>18.22</b>	<b>18.22</b>
Req. / Avail. Ratio		1.09	1.09	1.09	1.09

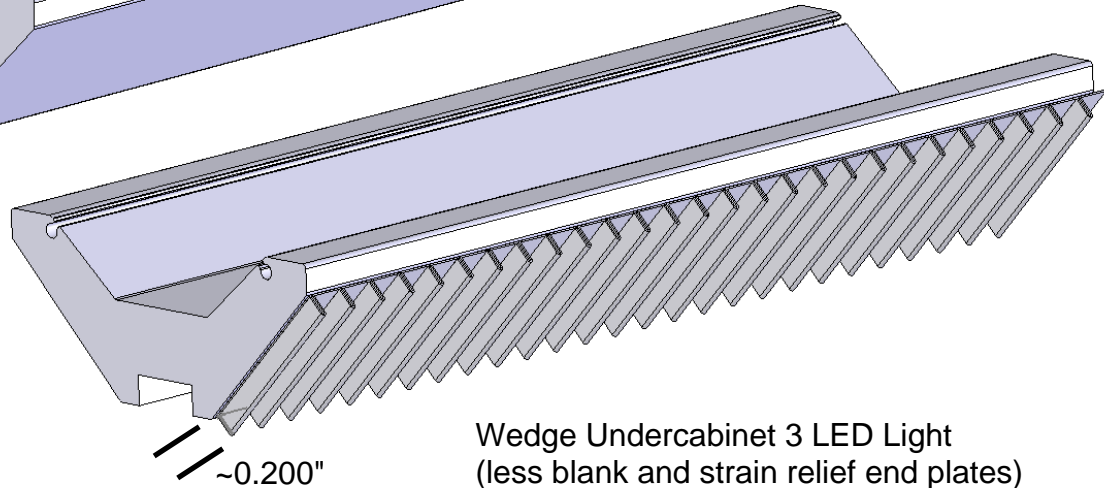
width of heatsink	7	7	7	7
number of fins	28	28	28	28
required fin height h	0.200	0.200	0.200	0.200
Heat sink height H	0.210	0.210	0.210	0.210
Perimeter	12.64	13.07	13.53	14.06
fin thickness	0.012	0.012	0.012	0.012
base thickness	0.010	0.010	0.010	0.010
centerline spacing	0.259	0.259	0.259	0.259
<u>open spacing</u>	0.247	0.247	0.247	0.247
Heatsink aspect ratio	0.8	0.8	0.8	0.8

Wedge Undercabinet 3 LED Light  
(less blank and strain relief end  
plates)

FIGURE 2



Wedge Undercabinet  
Extrusion Profile  
 $A=1.46 \text{ in}^2$   
Weight=1.75 Lb/Ft



Wedge Undercabinet 3 LED Light  
(less blank and strain relief end plates)

Fins on outside surface allows  
mounting next to back wall or allow  
more LED's