



Air inlet installation tips

Michael Czarick
The University of Georgia



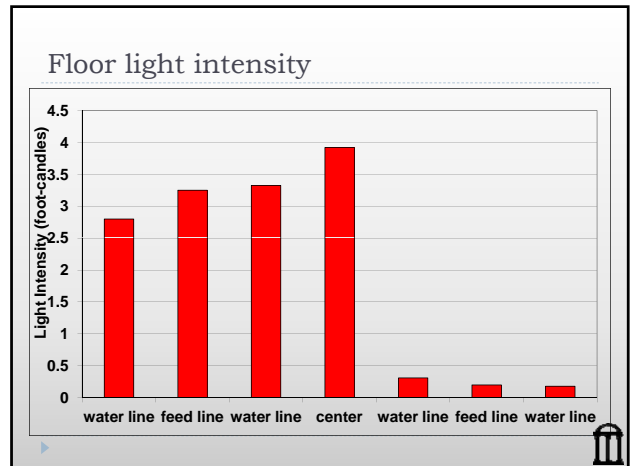


Installation tips

- ▶ Light hoods






A significant amount of light can enter through open side wall inlets

Light hoods

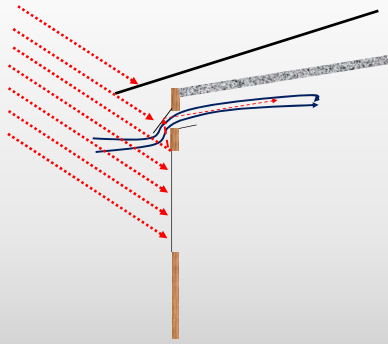
- ▶ Reduce light intensity but can also restrict air

Restrictive light hood




Restrictive light hood



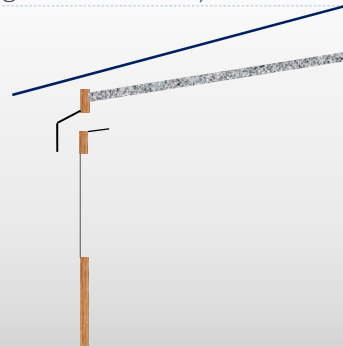
Restrictive light hood



Larger light hoods



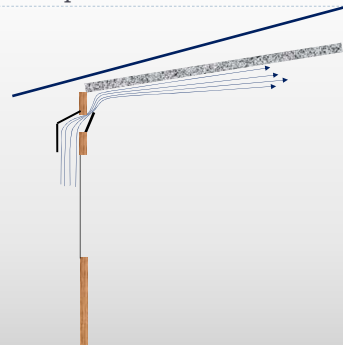
Less restrictive
(a little larger than the inlet)



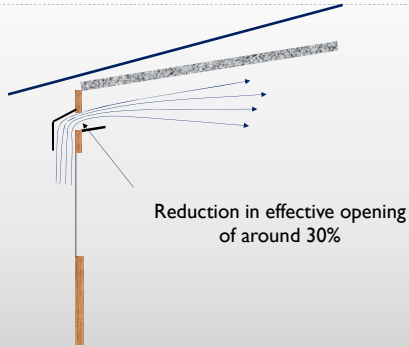
Even a larger light hood can still be restrictive



Hoods don't tend to affect air flow/volume when inlet is opened a small amount



Hoods can affect air flow/volume when inlet is fully opened



Light hoods

- ▶ Ideally would need to be about twice the size as the inlet to have no effect on air flow
- ▶ In general should be at least 30 to 50% larger



Large inlet hoods



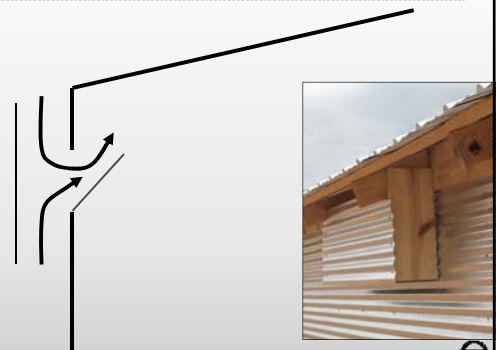
Another option is to use hoods that are open at the top and bottom



Open hood design



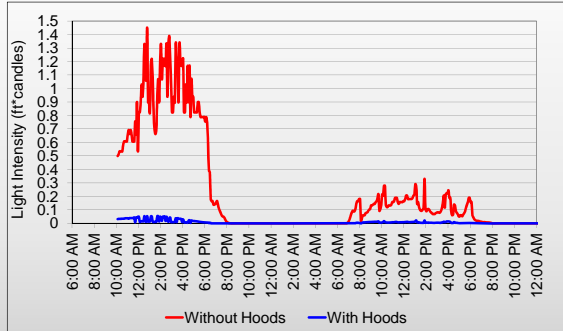
Open hood air flow



Plastic open light hood



With/without light hoods



With and without hoods



Simple and effective open light hoods



Simple and effective open light hoods

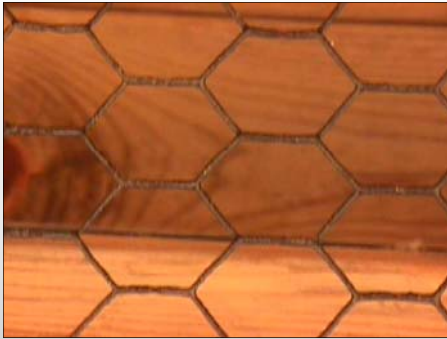


Installation tips

- ▶ Light hoods
- ▶ Bird wire



1" X 1" Plastic coated bird wire



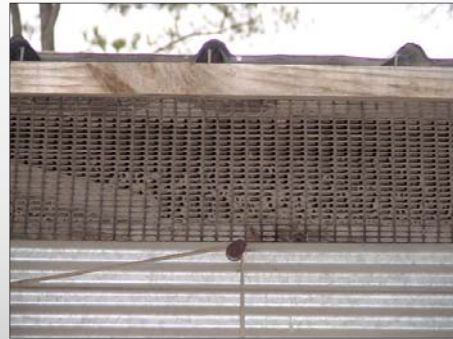
Smaller screen sizes can lead to maintenance issues



Plastic netting can be very difficult to clean



Some plastic netting can be very restrictive (30%+)



Clean on a regular basis because



Clogged inlet screens can affect temperature/air quality uniformity



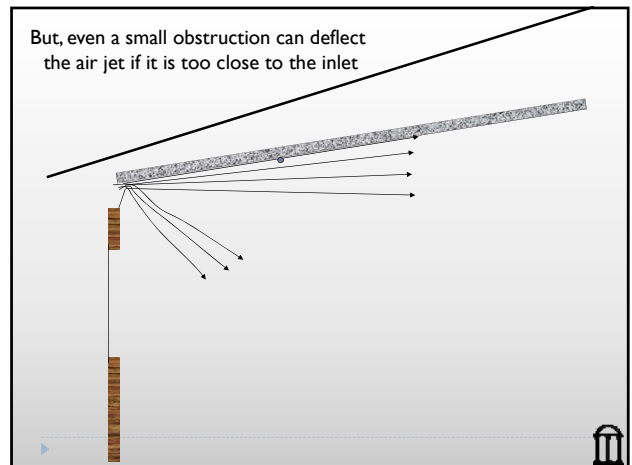
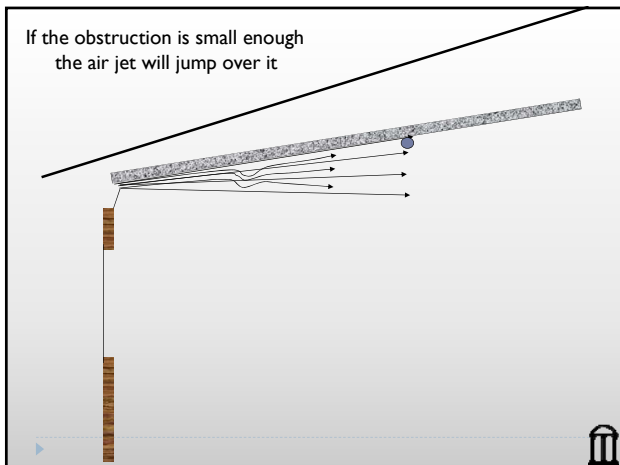
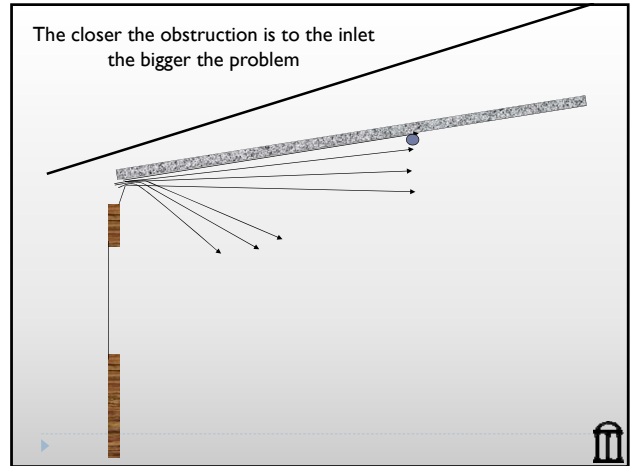
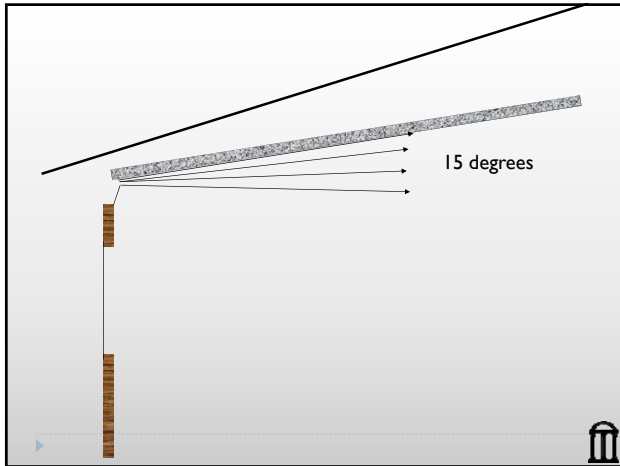
Installation tips

- ▶ Light hoods
- ▶ Bird wire
- ▶ Ceiling obstructions



To maximize air throw the ceiling should be free of obstructions

- ▶ Ideally there should be nothing on the ceiling within 8' of the side wall.
- ▶ The closer the obstruction is to the inlet the bigger the problem



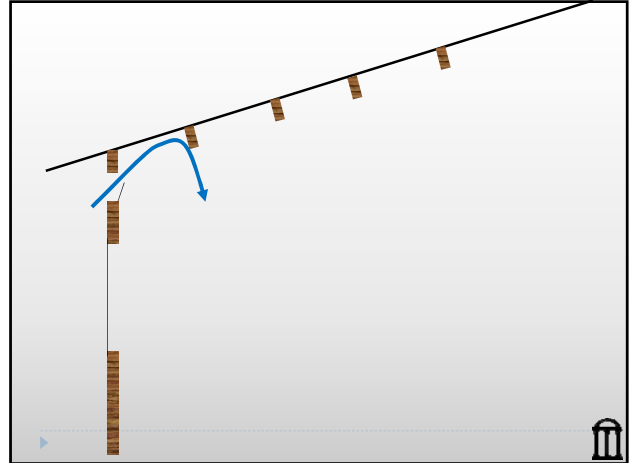
Inlet obstruction



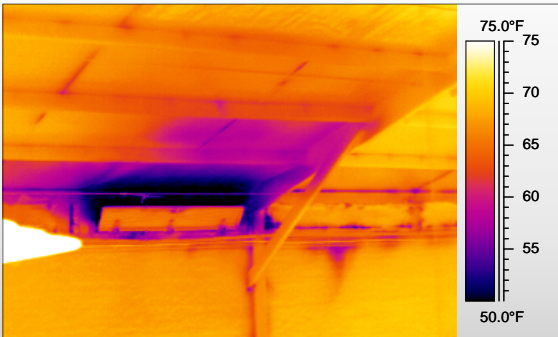
Inlet obstruction



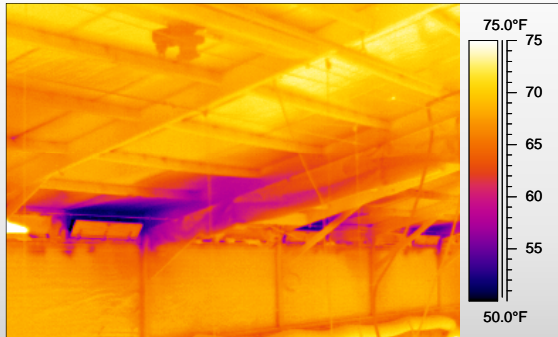
Open ceilings with exposed purlins, are a major obstruction



Exposed purlins



Exposed purlins



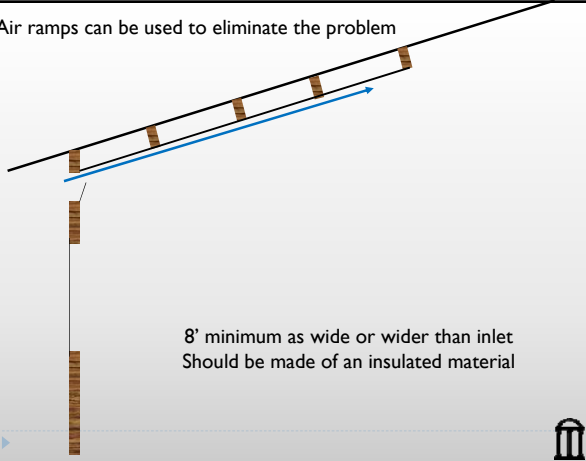
Air flow obstruction in open ceiling house



Air flow obstruction in open ceiling house



Air ramps can be used to eliminate the problem



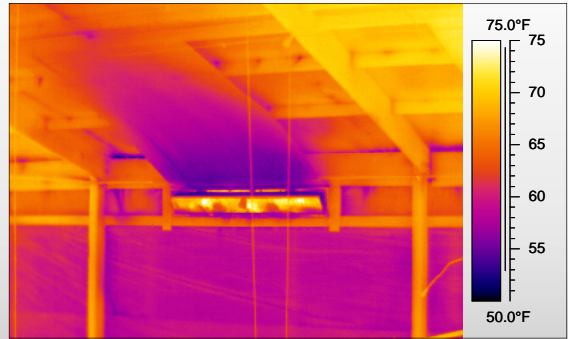
Air ramp



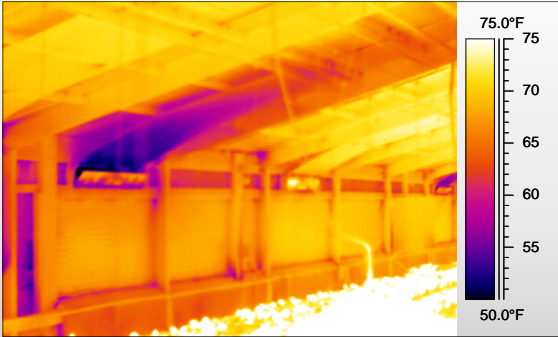
Air ramp



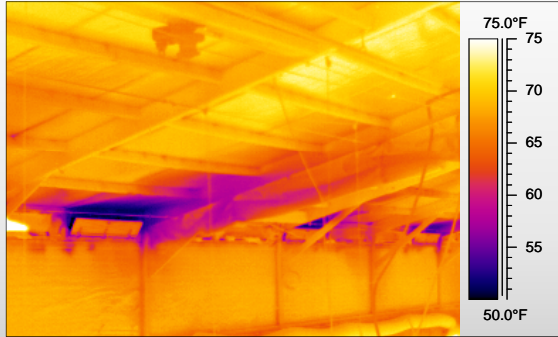
Plywood ramp



Plywood ramp



Exposed purlins



Air ramp



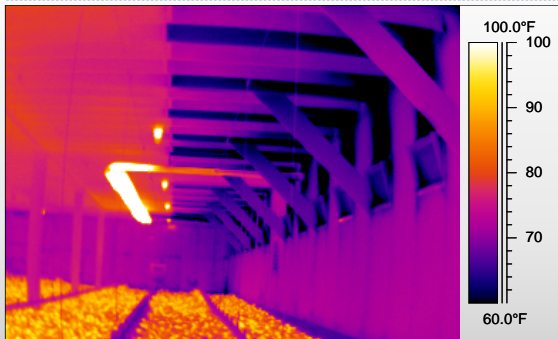
Plywood/metal ramp

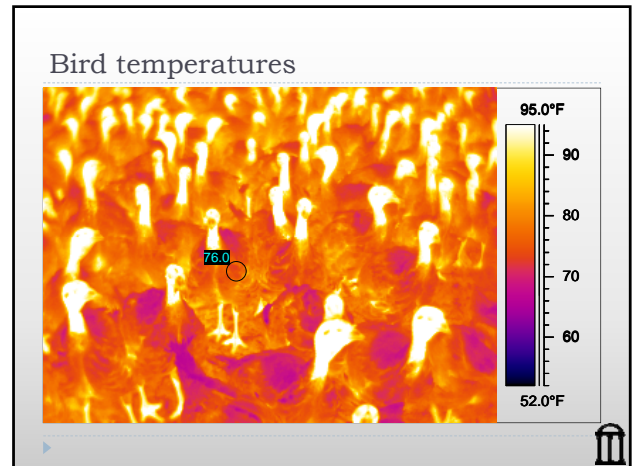
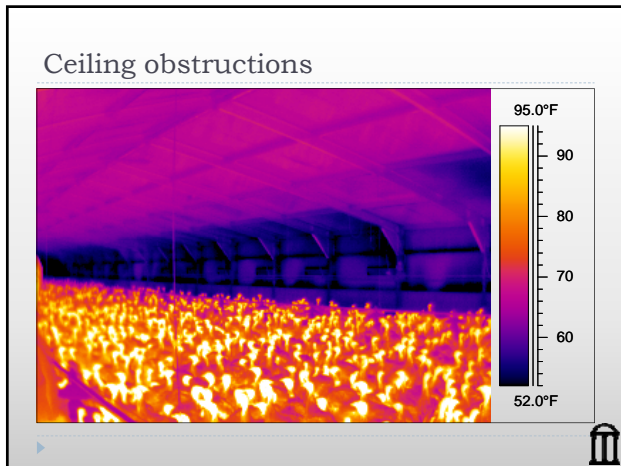
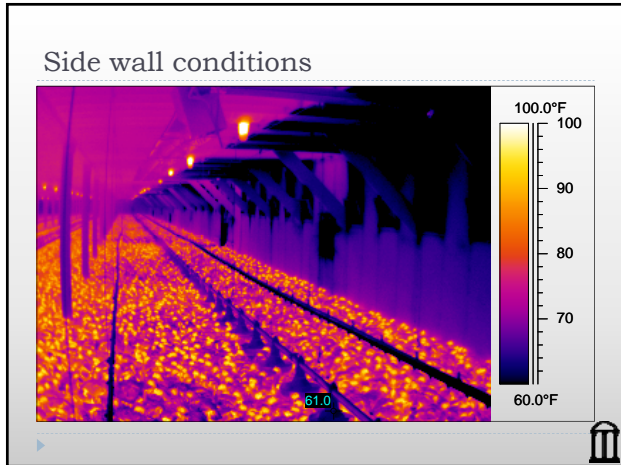


Don't used curtain air ramps



Ceiling obstruction





Installation tips

- ▶ Light hoods
- ▶ Bird wire
- ▶ Ceiling obstructions
- ▶ Ceiling smoothness

Ceiling smoothness

- ▶ Ceiling smoothness will also affect how far air moves across a ceiling before dropping

Ceiling smoothness



Ideal metal ceiling installation

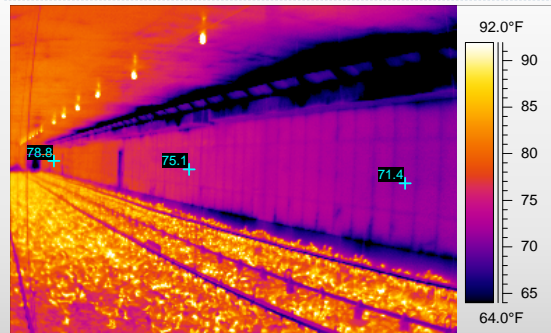


Installation tips

- ▶ Light hoods
- ▶ Bird wire
- ▶ Ceiling obstructions
- ▶ Ceiling smoothness
- ▶ Uniform inlet opening



Air inlet opening variation



Inlets variation is typically caused by...

- ▶ Cable stretch, sag, twist, and drag



Inlets variation is typically caused by...

- ▶ Cable stretch, sag, and drag
- ▶ Problems can be limited by:
 - ▶ avoiding long runs of cable
 - ▶ use support staples sparingly
 - ▶ avoid excessive turns
 - ▶ use heavy counter weights
- ▶ Problems can be eliminated by switching to 12 gauge fence wire or better yet steel rod



If you are having problems with cable stretch and twist...



Steel rod



Uniform opening/closing



Installation tips

- ▶ Light hoods
- ▶ Bird wire
- ▶ Ceiling obstructions
- ▶ Ceiling smoothness
- ▶ Uniform inlet opening
- ▶ Inlet machine speed



Inlet machine speed

- ▶ Inlet machine must be able to open and close the inlets relatively quickly.
 - ▶ Not as much as an issue with modern environmental controllers.
 - ▶ Minimum speed = 12 inches / min

Installation tips

- ▶ Light hoods
- ▶ Bird wire
- ▶ Ceiling obstructions
- ▶ Ceiling smoothness
- ▶ Uniform inlet opening
- ▶ Inlet machine speed
- ▶ Cable breakage/ pulleys



Many cable breakage problems are due to improperly sized pulleys



Pulley size

- ▶ Depends on the size and type of cable
- ▶ Primarily two types of cables
 - ▶ 7 X 7 and 7 X 19
 - ▶ First number is the number of bundles
 - ▶ Second number is the number of wires each bundle.

Pulley sizing guidelines

- ▶ Smaller diameters are more flexible than larger diameters
- ▶ 7 X 7 are less flexible than 7 X 19
 - ▶ 7 X 7 should have a pulley 42 times the diameter of the cable
 - ▶ 7 X 19 should have a pulley 25 times the diameter of the cable

Recommended pulley diameter

Cable Diameter	Pulley Diameter	
	7 X 7 Cable	7 X 19 Cable
1/16"	2 5/8"	-
3/32"	4	-
1/8"	5 1/4"	3 1/8"
5/32"	6 5/8"	3 7/8"
3/16"	7 7/8"	4 3/4"
7/32"	9 1/4"	5 1/2"
1/4"	-	6 1/4"
5/16"	-	7 7/8"
3/8"	-	9 3/8"

Alternatives to pulleys

- ▶ Chain and sprocket



Chain and sprocket turns



Pulley alignment

- ▶ Major cause of cable breakage



Cable/pulley alignment



Cable/pulley alignment

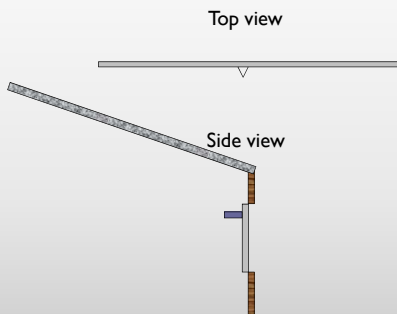


Installation tips

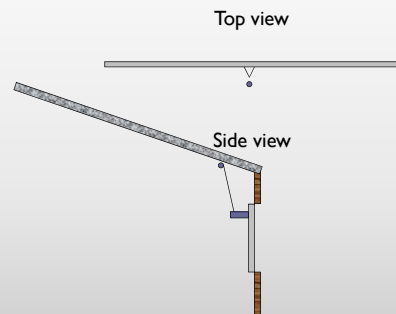
- ▶ Light hoods
- ▶ Bird wire
- ▶ Ceiling obstructions
- ▶ Ceiling smoothness
- ▶ Uniform inlet opening
- ▶ Inlet machine speed
- ▶ Cable breakage/ pulleys
- ▶ Inlet pulley location

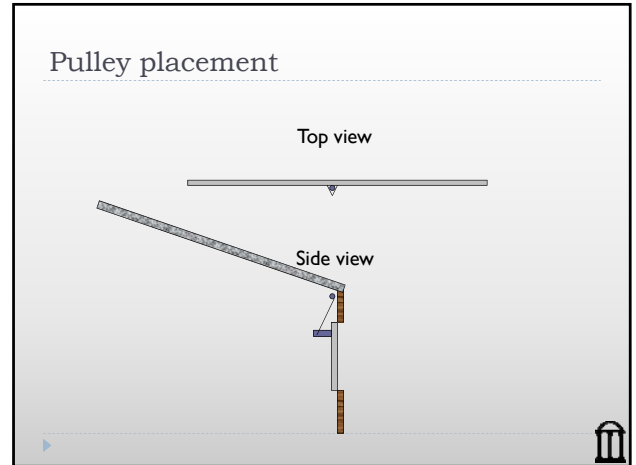
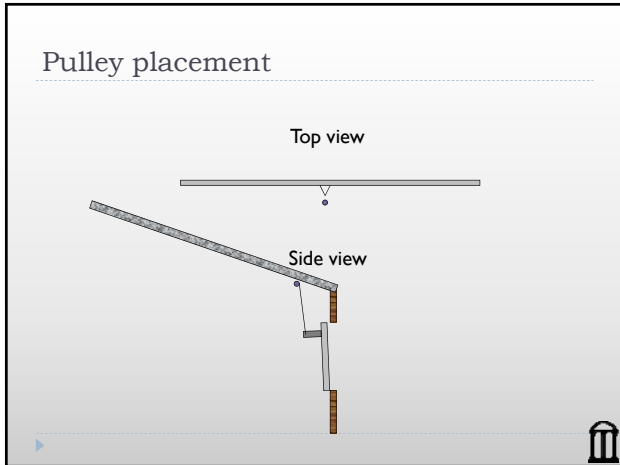


Pulley placement



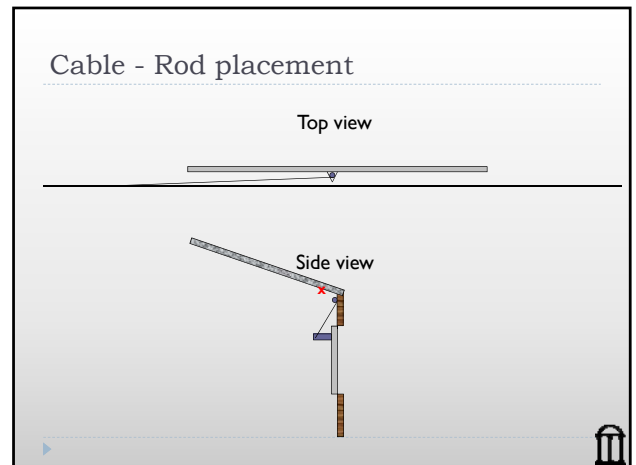
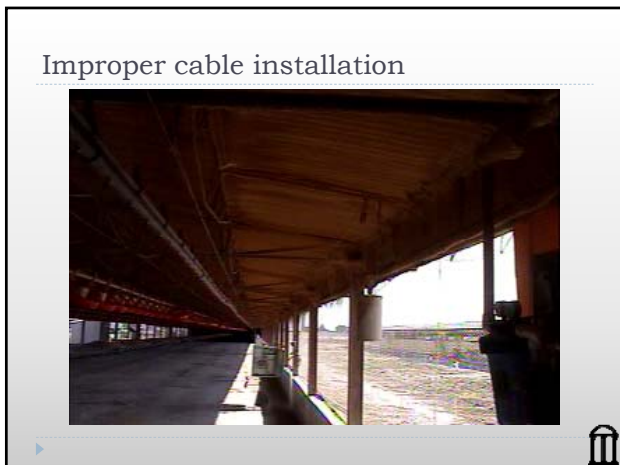
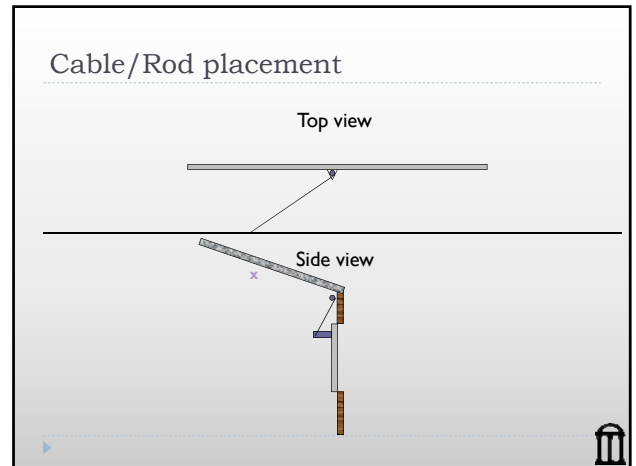
Pulley placement



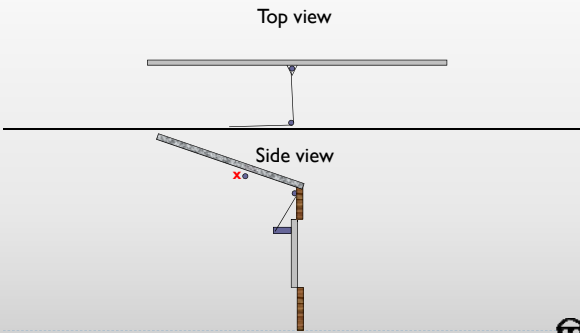


Installation Tips

- ▶ Number of machines
- ▶ Machine direction
- ▶ Cable breakage/ pulleys
- ▶ Throw backs
- ▶ Inlet pulley location
- ▶ Cable/rod placement



Cable - Rod placement



Installation Tips

- ▶ Number of machines
- ▶ Machine direction
- ▶ Cable breakage/ pulleys
- ▶ Throw backs
- ▶ Inlet pulley location
- ▶ Cable/rod placement
- ▶ Latches



Inlet Latches

- ▶ 50 – 60 inlets are there for older birds warm weather.
- ▶ To maintain optimal air flow at times inlets will need to be closed.
 - ▶ Brooding
 - ▶ Hot/cold spots

Installation tips

- ▶ Number of machines
- ▶ Machine direction
- ▶ Cable breakage/ pulleys
- ▶ Throw backs
- ▶ Inlet pulley location
- ▶ Cable/rod placement
- ▶ Latches
- ▶ Handle orientation



Handle orientation



incorrect



correct

Flimsy handle



Installation tips

- ▶ Number of machines
- ▶ Machine direction
- ▶ Cable breakage/ pulleys
- ▶ Throw backs
- ▶ Inlet pulley location
- ▶ Cable/rod placement
- ▶ Latches
- ▶ Handle orientation
- ▶ Counterweights



Wrong spring size



Counterweights

- ▶ Springs tend to do a better job
- ▶ If using a weight make sure your turning pulley is correctly sized.



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