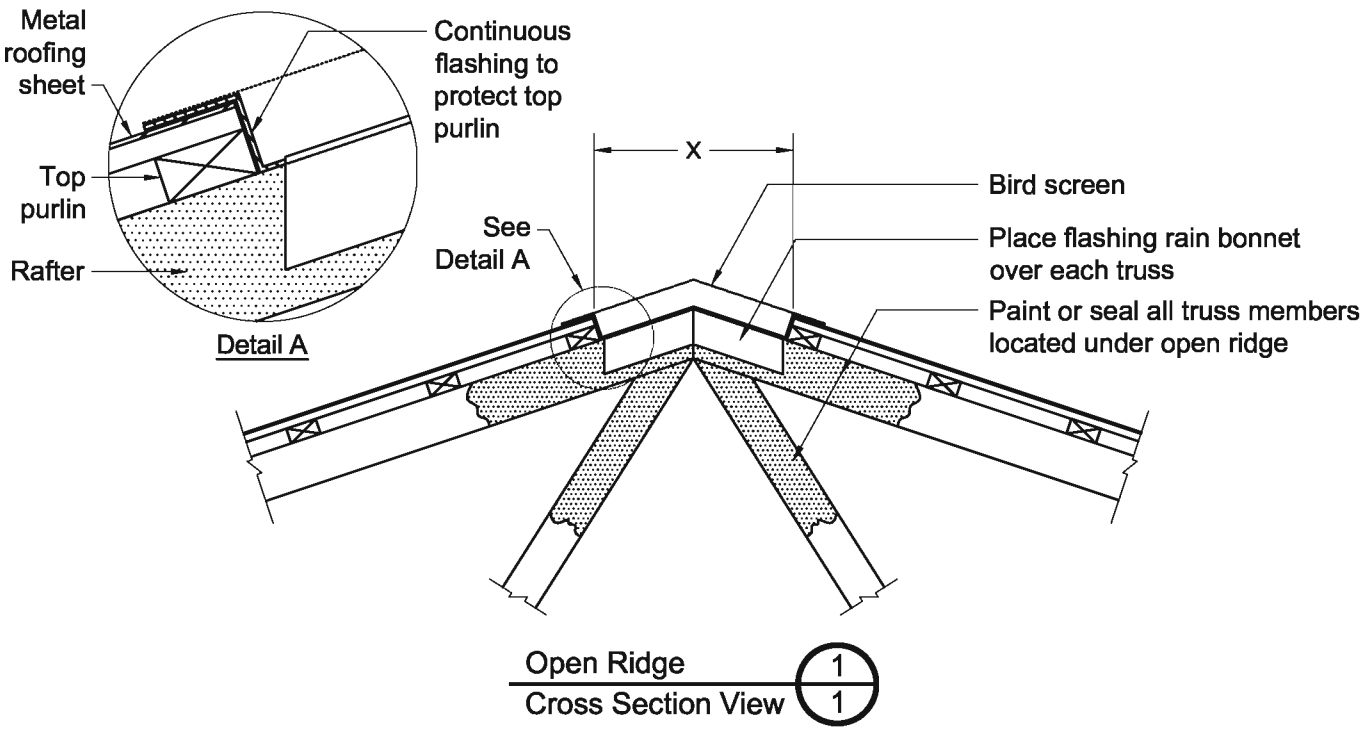

The information on this detail sheet is based on a 4/12 roof pitch with little or no insulation in the barn. It comes from laboratory and field observations and should also be suitable for 3/12 and 5/12 roof pitches. Buildings with lower or steeper roof pitches are not usually recommended for dairy cattle. Buildings that will use tunnel ventilation or that are heavily insulated for cold weather temperature control require more elaborate ridge openings with some type of closure system. Consult a competent designer who has experience with cattle shelter ventilation for special situations.

Provide a minimum of 12" of clear ridge opening for roofs up to 40' wide. For each 10' of roof width beyond 40' add 3" to the opening. For animals less than 12 months old this may be reduced to a minimum ridge opening of 8" and an additional 2" of opening for each 10' over a 40' width.

Ridge opening (X) for 3/12, 4/12 and 5/12 roof pitches

Shelter width	Ridge opening width (**X**) 3"/10' width - adult cattle	Ridge opening width (**X**) 2"/10' width - cattle under 12 months
(ft)	(in)	(in)
Up to 40 (min.)	12	8
40 - 50	15	10
50 - 60	18	12
60 - 70	21	14
70 - 80	24	16
80 - 90	27	18
90 - 100	30	20
100 - 110	33	22
110 - 120	36	24
120 - 130	39	26

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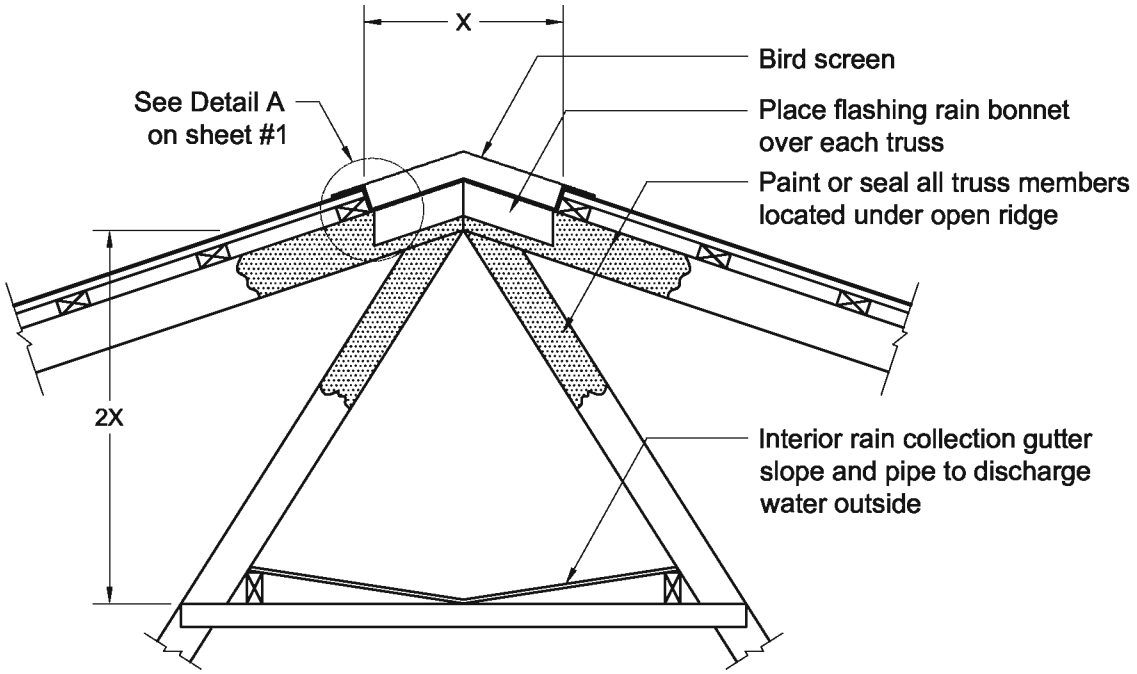
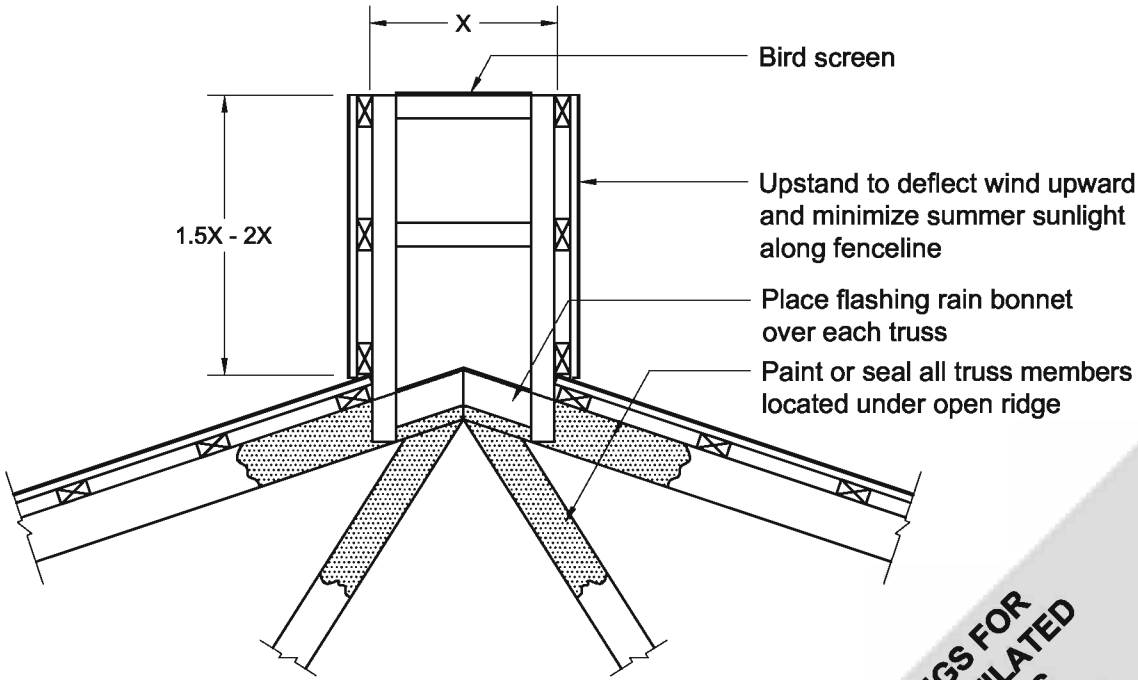
RIDGE OPENINGS FOR NATURALLY VENTILATED DAIRY SHELTERS

McFarland, Graves, Tyson, Wilson

Date: 02/19/07
No. DIP 811



Open Ridge with Interior Gutter
Cross Section View
1
2



Open Ridge with Upstands
Cross Section View
1
3

RIDGE OPENINGS FOR NATURALLY VENTILATED DAIRY SHELTERS

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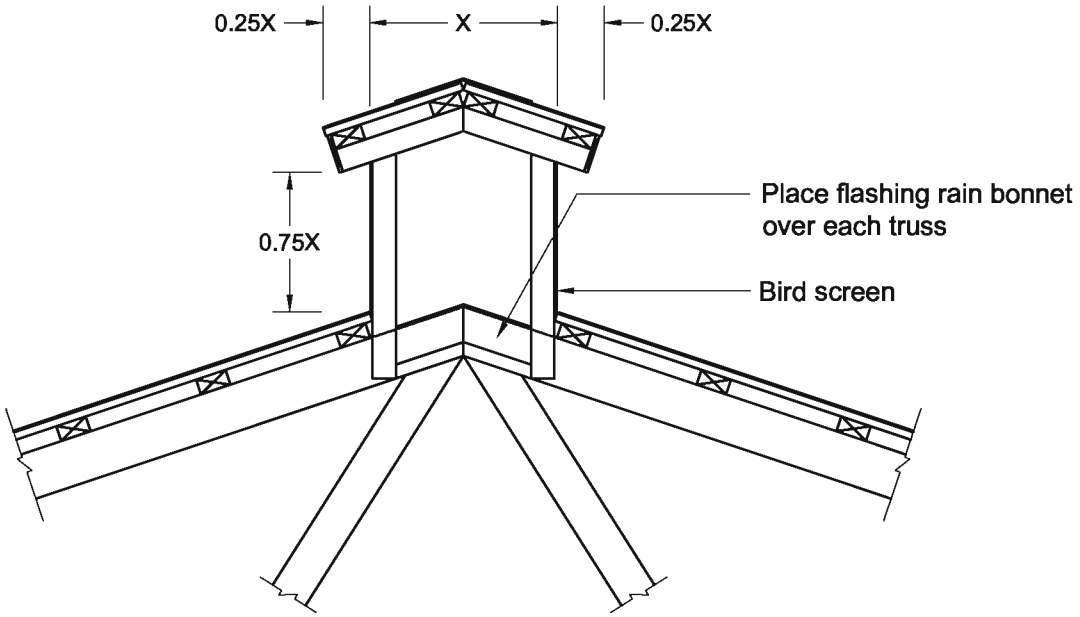
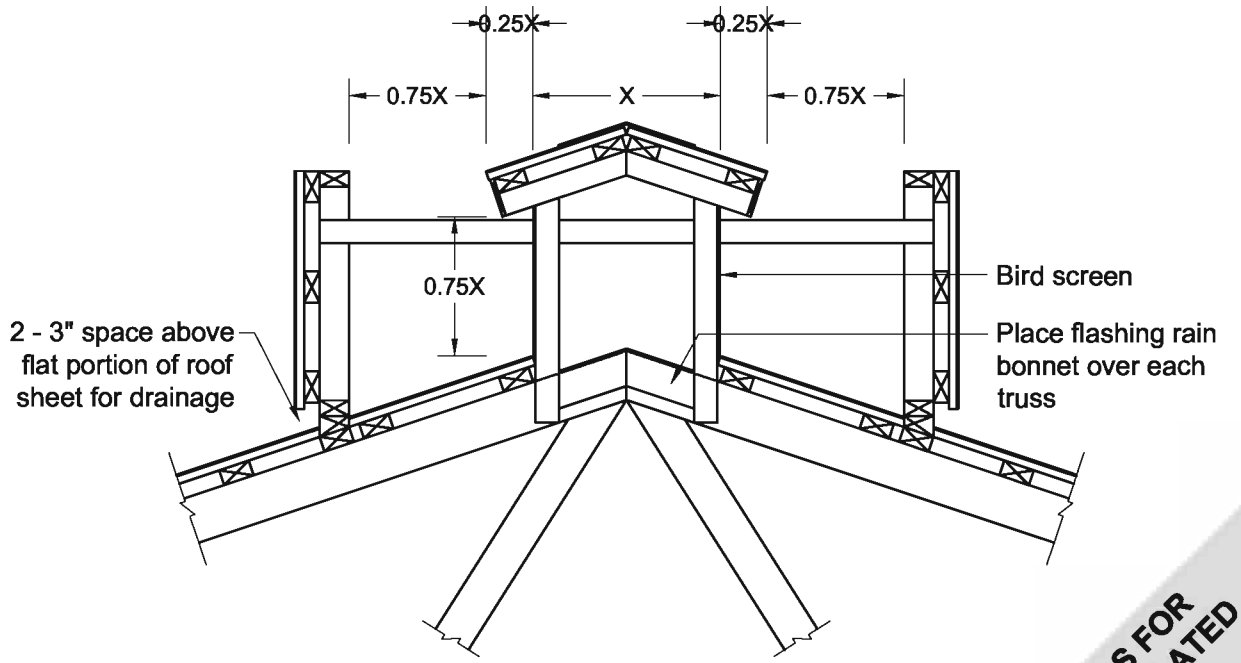


Open Ridge with Cap
Cross Section View
1/4



Open Ridge with Cap and Upstands
Cross Section View
1/5

RIDGE OPENINGS FOR NATURALLY VENTILATED DAIRY SHELTERS

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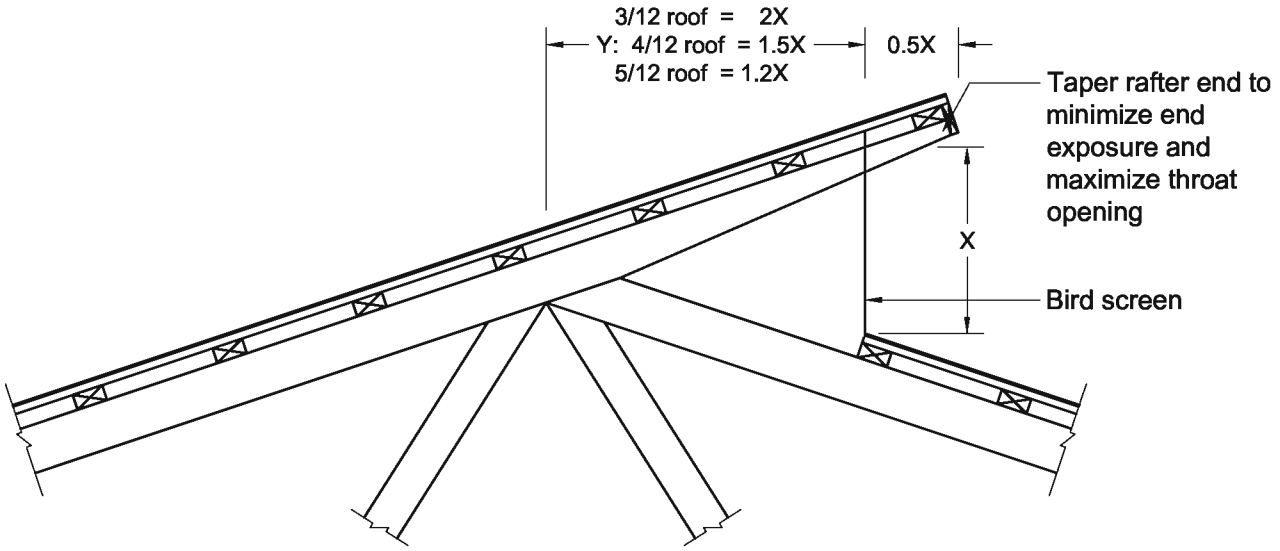
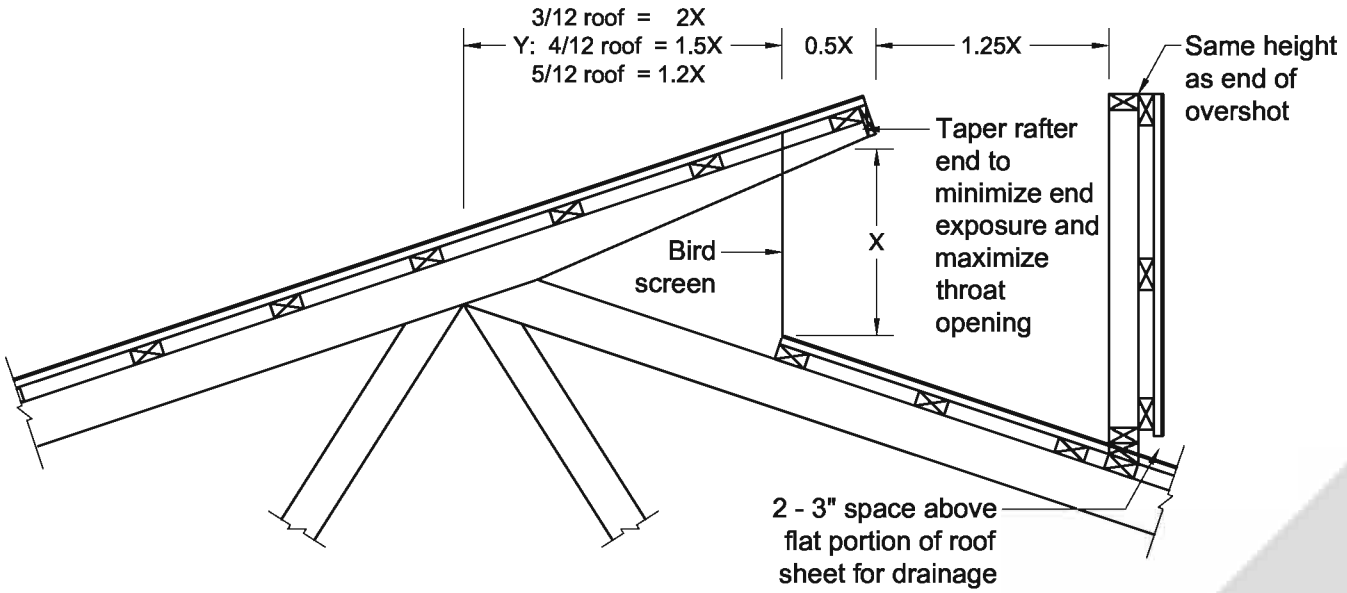


Overshot Ridge Cross Section View — 2/1



Overshot Ridge with Upstand Cross Section View — 2/2

RIDGE OPENINGS FOR NATURALLY VENTILATED DAIRY SHELTERS

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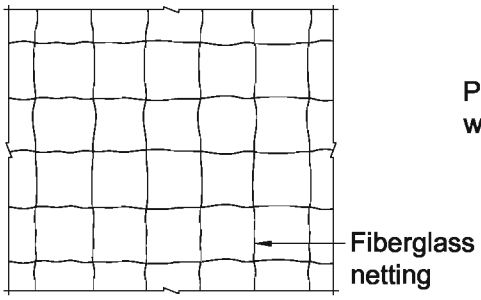
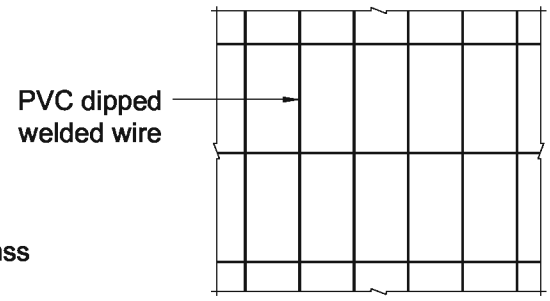
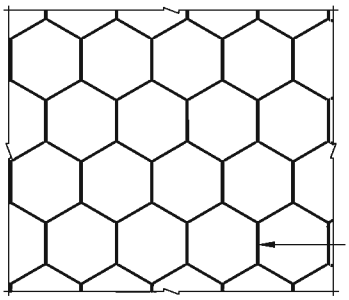


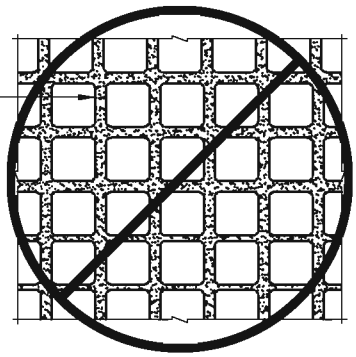
1" Fiberglass Netting 3/2
Front View



1" x 2" PVC Dipped Turkey Wire 3/1
Front View



1" Coated Chicken Wire 3/3
Front View



Wide Bar Mesh 3/4
Front View

Ridge opening construction and protection.

- A simple open ridge (sheet #1) using paint or wood sealer and a flashing bonnet to protect structural elements from the weather is cheapest and simplest to build and provides minimum obstruction to exhausting air. It also allows precipitation to enter through the ridge and with wide ridge openings can result in a band of sun in the shelter that interferes with cow comfort during hot weather.
- Upstands, ridge caps, overshot ridges and interior gutters (sheets #2 - 4) are all efforts to minimize precipitation and sunlight penetration. Their use and construction must allow for unhindered air exhaust and also consider the high wind forces that exist on the top of a building. The path of the exhausting air must always be moving upward.
- Bird wire or netting can be used to prevent birds from entering or nesting in the ridge opening or its appurtenances. Select bird wire that will allow for maximum air flow but also exclude the undesired birds, a common house sparrow can go through a ¾" diameter hole. Stiffness, resistance to deterioration and effective air opening as well as the likelihood of plugging up with dust and debris or frost should all be considered when selecting bird wire. **Do not use plastic "snow fence" type material that has wide bars between the openings as this will significantly reduce the effective open area for air flow.**

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