

Keep The Construction Book, Use It To Prevent Collapse

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YORK (York Co.) — As the snow fell this past winter so did a number of buildings, both old and new.

Exceeding the "design snow load" may have caused some to collapse, but many more failures occurred as a result of inadequate bracing, poor connections, and deteriorated building members.

Engineered buildings are designed to withstand "reasonable" forces caused by the wind and snow. The estimated ground snow load is based on a storm with a 50-year recurrence interval.

In Pennsylvania, ground snow load estimates range from 25 to 35 pounds per square foot (psf). However, due to local topography and conditions these estimates may be exceeded.

Reports indicate that the snow loads in some areas exceeded 35 psf this year. Some roofs failed, but many more survived! Other roof systems failed with snow loads less than 25 psf.

Drifting and sliding snow and ice can shift on the roof creating an unbalanced loading situation.

Drifting snow on the leeward side (away from the wind) of the roof is common during the winter. A buildup of ice and snow will also occur where the profile of the roof

pitch becomes shallower toward the outside edge. This is common with lean-tos built off of existing buildings.

Established building guidelines are useful in determining building member sizes and connection requirements.

Another problem associated with additional built off of existing buildings is when the addition roof is lower than the eave of the roof of the existing structure. Now the lower roof has to be able to support the weight of the snow coming off half of the existing roof and absorb the impact of the sliding snow when it falls from the upper roof. To accommodate this extra loading larger building members and stronger connections are required.

Bracing the roof system properly allows the building components to work together to resist the forces placed on the structure by snow and wind.

Trusses must remain in a straight and in a vertical plane to function properly. Trusses which are not plumb or bend too far out of the vertical plane are destined to fail.

Proper lateral, diagonal, and web bracing is essential. Design and construction guidelines on bracing should be followed to insure the truss roof system works as a unit.

A roof system is only as good as

the connections that hold it up.

In a building, the loading is transferred from the roof cover to the purlins, to the trusses (or rafters), to the header, to the wall support (or post), then to the ground via a footer. In its path from roof to ground the load passes through several connections.

If a connection cannot withstand the forces it fails. Simply adding more nails may not be the answer, in fact it could weaken the connection by damaging the building member. Bolts are often required in post frame construction to sup-

port the roof system.

Again, design and construction guidelines should be followed. Reports of some structure failures due to the "winter of '94" found the complete roof system intact, but on the ground, as a result of poor support connections.

Deterioration of building members, of course, weakens the structure. Deterioration is caused by insects, water damage, or inferior wood. Poorly ventilated areas, especially in livestock housing, can cause a building to rot from the inside out.

The winter of '94 has caused a number of people, builders included, to reconsider design snow loads. However, keep in mind that the design and construction guidelines are adequate, but must be followed. Following these guidelines may cost more initially, but can save money, property, and possibly life.

A number of buildings fell victim to the storms of this past winter. However, a great many more remain standing. It is not the time to throw the design book away, just time to follow it.

Lackawanna To Join Farmland Program

HARRISBURG (Dauphin Co.) — The Pennsylvania Agricultural Land Preservation Board approved easement purchases for six farms in four counties, including the first in Lackawanna County.

As a result of the board's action, 605 acres of prime farmland are protected from development in Columbia, Erie, York, and Lackawanna counties.

"We're very pleased to have Lackawanna County as a part of the Farmland Protection Program," said state Agriculture Secretary and Board Chairman Boyd E. Wolff. "There are some good farms in that county that are being threatened by development."

Under the Farmland Protection Program, which began in 1989, the state and counties purchase development rights to guarantee that current farms will remain as agricultural land. Individual landowners apply to county agricultural land preservation boards.

If approved for possible easement purchase, the county boards may request state funding participation. Counties may participate jointly with the state in easement purchases or may purchase easements outright themselves.

Following are the properties approved, listed by county, owner, township, acreage and easement purchase cost:

• Columbia — Gene C. Miller, Locust Township, 103 acres, \$96,274.

• Erie — Lee E. and Mary E. Payne, Elk Creek Township, 92 acres, \$83,095.

• Erie — Kenneth N. and Shirley J. Rogers, Elk Creek Township, 45 acres, \$40,662.

• Erie — Jackson J., Margaret A., Douglas H., and Catherine J. Yost, Venango Township, 161 acres, \$112,788.

• Lackawanna — Floyd and Rita Thomas, Madison Township, 31 acres, \$49,628.

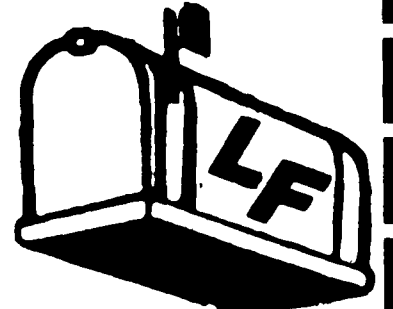
• York — Willard and Ina Kilgore, Lower Chanceford Township, 173 acres, \$172,048.

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12	4.56	9.12	11.52
13	4.94	9.88	12.48
14	5.32	10.64	13.44
15	5.70	11.40	14.40
16	6.08	12.16	15.36
17	6.46	12.92	16.32
18	6.84	13.68	17.28
19	7.22	14.44	18.24
20	7.60	15.20	19.20

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- The following categories are available in your classified advertising. In Section C. Deadline-Wednesday afternoon at 5 of each week's publication.

- 1a-Construction Equipment
- 3-Silos and Unloaders
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- 10-Sheep & Goats
- 11-Swine
- 12-Artificial Breeding
- 13-Hog Eq. & Supplies
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