

2/21/2011: A Leaning Chimney: Sometimes we find chimneys are that are leaning. There are two primary causes for this sort of problem:

1. A solid masonry chimney was set on inadequate soils. The weight (load) of the chimney on the unstable soil causes uneven settlement and the chimney leans in one direction or another, sometimes toward the house and sometimes away from the house.
2. 2: The brick veneer covering a wood frame flue chase is supported on the roof framing (see photos that follow this text).

The latter problem is probably more often noted today because most modern homes are built with pre-fab (factory built) fireplaces and the “chimney” is actually a wood framed shaft that houses a sheet metal flue. Such a flue chase may be covered with any suitable material including siding (most common), brick veneer, stone, cultured stone, or stucco.

Wood framing is not designed to accommodate loads imposed by brick veneer (or stone) and in fact the building codes prohibit this practice. Chimney chases are usually built on an outside wall of a house, so at least one wall of the chase and parts of two other walls are supported brick on brick from the ground to the top of the chase. The sections of the walls that intersect the roof line may or may not be properly supported and this where the problems occur.

Builders often make the mistake of laying the brick directly on the wood framing of the roof. This creates a condition where portions of the same brick veneer construction are supported by two different systems: part on a concrete footing set on the ground and part on wood framing of the roof. The roof framing will strain under the heavy load imposed by the brick veneer and deflect. When deflection occurs the framing “gives” and this allows the chimney to lean in toward the house.

A leaning chimney is an expensive problem to properly repair. The best advice is to hire a Professional Engineer (PE) who is an expert in residential construction to design the repair and to hire a reputable contractor who is committed to carefully executing the engineers design. Expect a properly executed repair to cost thousands of dollars.



The chimney chase on this house is leaning in, towards the house.



Looking up the chimney chase from the ground, one can see how it leans in



“Don’t try this at home!” Makeshift repairs didn’t work. Call an engineer to design repairs for a leaning chimney.