



## **Understanding your crawl space**

Crawl spaces are an area of the house that tends to get neglected. Unfortunately, this also means that crawl space problems can go unnoticed until they have an impact on the living space above. Then a problem that could have been easily remedied may have progressed into an expensive structural or health-related issue. The crawl space can also present a significant energy drain on a home if not insulated properly.

Good moisture control in the crawl space can stop many problems before they start. Gutters are relatively inexpensive and can provide huge preventative paybacks, as a house without gutters can direct a lot of water against the foundation. Soils, wood, and especially concrete can conduct water through capillary action. Similar to a paper towel, concrete can soak up water and can carry it great distances. If gutters are not an option, then the soils around the house should be sloped to direct water away from the building. Once water reaches a foundation, the structure should have some type of waterproofing on the outside to resist it. If this has deteriorated or doesn't exist, you may need to install a new one.

Once external sources of moisture penetration have been addressed, it's time to inspect the interior. Whether a crawl space is insulated and sealed can affect the entire building envelope.

Exposed dirt floors should be covered and well sealed with a continuous vapor barrier, such as 6 mil polyethylene. This prevents moist air from entering through the ground and condensing on cold surfaces like wood, steel or concrete. Even a dirt floor that looks and feels dry can release a significant amount of moisture, especially after heavy rains.

Insulating the crawl space is also important. Interior Alaska building codes require foundations to be 42 inches below grade to protect the footings from freezing and frost jacking. Anything above that point has a good chance of freezing during the winter, which can mean serious heat losses if the crawl spaces walls and rim joist areas are under-insulated.

Inspect the foundation walls closely. If fiberglass insulation was installed directly against the walls with no moisture protection, or the dirt floor was left exposed, the insulation may be wet and need replacing. You should inspect the floor system for the same problems if the floor joists were insulated.

Any exposed ducting should be inspected to make sure all seams are sealed and connected. Be sure that exhaust fan piping doesn't vent under the floor but vents directly outside.

If you need to add or replace insulation, rigid foam and sprayed foam are good candidates because they have high R-values and also act as vapor barriers. If you use foam, especially below grade, make sure it's approved by the manufacturer for your specific application. Most unfaced foams are required by code to be fire protected, which can be done with a fire retardant paint.

The crawl space is integral to the foundation of the house, and in some cases the largest source of unregulated airflow into the home. Good moisture and insulation habits should start here.