

3. COMFORT



Comfortable Environment

Concrete walls built with Ambionse effectively buffer a house's interior from the outdoors. The thick ICF sandwich of a massive material with a light insulating material sharply cuts temperature fluctuations, air infiltration, and noise. The sandwich keeps the inside of a house more comfortable and quiet than ordinary timber frame walls.

When planning a new house, consider the greater well being that could come from living with a more even temperature, sharply reduced drafts, and noticeably greater quiet. These things are available with concrete walls built with Ambionse.

ICF homeowners appreciate the quietness, comfort, solidity, and energy efficiency benefits more than they ever imagined. In a 1997 US survey to determine what new homeowners liked about their homes over 80% of the ICF owners mentioned the great comfort, compared with 22% of the timber frame owners. Over 60% of ICF homeowners mentioned the quietness of their houses, versus only 2 percent of the frame homeowners¹.

ICFs have been tested under extreme wind (tornado) conditions and have not sustained any significant damage. While tornadoes are not normally a major issue in New Zealand, this shows that by using Ambionse, you will protect your most valuable asset from the worst nature can throw at it, allowing you to sleep peacefully through any storm.

Greater Insulation

Energy savings and comfort are built into every Ambionse wall. There is no need to build the wall then add insulation, as the formwork is the insulation. This insulation provides the completed Ambionse wall with an R-value of R3.0 - more than three times the Code requirement.

The thermal mass benefits of the concrete core of the Ambionse wall also smooth out temperature fluctuations. The concrete acts as a buffer between the inside and outside temperatures. So the house does not tend to overheat in summer afternoons or get suddenly chilly in winter evenings.

In a timber frame house, thermal bridge spots are often evident by condensation patches on cold winter mornings. There can be up to 15% of a timber-framed wall without any insulation because the solid timber in the studs, plates and lintels create disruptions in the insulation. There is no thermal bridging in the walls of an Ambionse home.

¹ Ref: Insulated Concrete Formwork Association (ICFA)

Near Zero Infiltration

Drafts are avoided in an Ambionse home because the walls are exceptionally airtight. The continuous concrete core seals the wall. There are no joints in the wall and none between the floor and the wall so there aren't any opportunities for drafts.

Energy Savings

This combination of a high R-value, low air infiltration, and high thermal mass is believed to account for the amazing 25% to 50% energy savings because the home doesn't need to be heated or cooled the same. As an example of this savings, a large (500m²+) home in Auckland was constructed with underfloor heating installed, but the owners never turned the system on because the Ambionse walls provided a consistent temperature year-round.

Peace & Quiet

Ambionse is significantly quieter than conventional residential construction materials. This is a big advantage when building on a busy road, near an airport or when buffeted by strong winds. New ICF homeowners almost always remark on how unbelievably quiet their new house is, compared to their previous house built with conventional materials.

Sound Transmission Class (STC) is a number representing the transmission loss of airborne sound through a material. It is used to measure the sound insulation properties of partitions between rooms or buildings. You will be aware that one of the most annoying transmitted sounds between dwelling units tends to be the bass coming from the neighbour's stereo or television. This is a part of the sound spectrum a long way removed from the voice range. The extra mass of an Ambionse wall is able to block these annoying sounds. The STC calculation is weighted in favour of the part of the sound spectrum that represents the human voice. The actual behaviour of two partitions with the same STC rating can be dramatically different because of the ability of the material to block different frequencies of sound.

Ambionse has been constructed as the intertenancy or party wall in a number of apartment/terraced housing developments. The noises from the adjoining dwelling are successfully prevented from passing through the solid wall, much to the delight of the owners.

