Van Welleman Villas

Abstract

Stability, Endurance and Robustness ver. 1.0

"building exceptionally robust homes"

The difference between poor foundations and rock-solid foundations -unfortunately- is invisible for the naked eye. It is only after years (after warranty expiration) that the lack of quality starts to show. That is, unless you have built with Van Welleman Villas®. Our homes have exceptional strength and robustness since they are designed to last for many generations to come. That is why Van Welleman Villas® come with various extended warranties.

Nowadays "successful" companies have monthly reports showing their profits and margins. One or two quarters with less performing shares and a new CEO appears. Short-term is the new reality. Not so with Van Welleman Villas®. At Van Welleman Villas® we are convinced that long-term quality automatically outperforms short-term success.

The very first goal is -as described in our Position Papers"- to build the very best houses on this planet, regardless the effort that requires. Second, we do not want to be the largest, nor the biggest or most exclusive. We only strive to perfection in residential construction, with a clear focus on Quality, Safety, and Comfort.

The ultimate in Robustness

At Van Welleman Villas®, the foundations represent a significant part of the budget. In fact, our foundations are not "traditional" foundations, instead, they are a combination of two massive plates connected to each-other using huge concrete walls. Not just "concrete", but fiber-reinforced concrete of high quality with additional steel reinforcement on each and every construction node. Also, our concrete walls are exceptionally thick, high, and integrated with the foundation-plates through additional steel reinforcements.

On top of all of this, lower as well as upper weir-plates are used to ensure waterproof cellars … for decades. In fact our "foundations" are three-dimensional "shoe-boxes" that are far more robust compared to the traditional two-dimensional foundation plates.

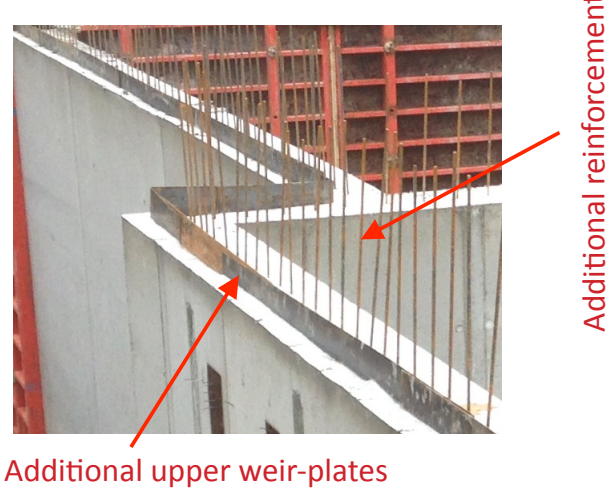
Common sense tells us that the strength of a chain is defined by its weakest link, an with concrete walls (no matter how thick they are) the weakest ling is the pass-through of utility cables (i.e. CCTV, Internet, Electricity, Grounding, etc.). Therefore we use external concrete technical ducts providing an additional barrier against water breaches.

All of of the above is done with one purpose only, to provide a rock-solid foundation for the house that comes on top of it.

Should this "Abstract" trigger your hunger for more information then there are a multitude of "White-Papers" available containing more detailed information on our solutions for maximum stability and robustness.

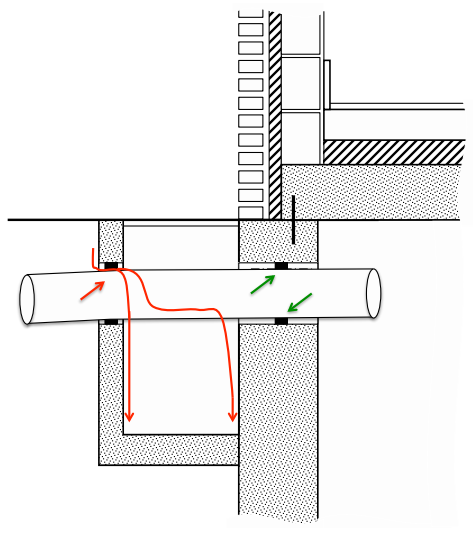
Exceptional Cellars & Foundations

Extremely thick fiber-reinforced concrete walls with additional weir-plates and steel reinforcement ensure exceptional strength.



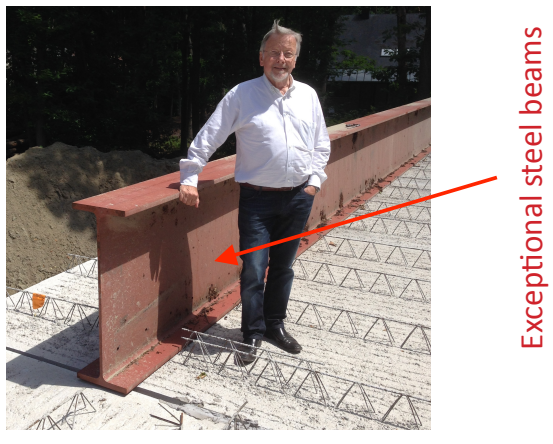
Two-stage Utility Entrance

A technical utility-duct enables a two-stage, waterproof cable entry under all circumstances.



Exceptionally Strong Reinforcements

Extremely thick steel beams are used.



Van Welleman Villas

What makes Van Welleman Villas® different ...

Exhaustive Stability Study
At Van Welleman Villas® everything starts with an exhaustive stability study including a 3D presentation of the load capacity of the soil for a thorough stability-analysis. Finally, upon completion of the architectural plans, the bending states of the steel sections will be calculated and added to the construction tender.

Rock-solid Foundations
Steel-reinforced quality-concrete with lower weir-plates ensure a water-tight sealing of the foundation/wall connection. Our foundations are typically 40cm thick with three layers of steel reinforcement. Optionally the traditional steel reinforcement can be replaced with a stainless alternative.

Exceptional Cellars
Cellar walls are -by default- 50cm thick, consisting out of a combination of fiber-reinforced concrete with additional heavy steel reinforcement of the bearing points. Also, at the top of the wall a secondary barrier of weir-plates combined with additional steel reinforcement is provided. This guarantees outstanding stability as well as an 100% long-term waterproof integration. Our cellars come with decades of hassle-free usage.

Floating Organic Matrix Foundations
Where reinforced concrete cellars are not possible, organic matrix foundations are used (e.g. the foundation of the porch) for enhanced resistance against torsion, bending and tensile forces. These “extensions” are always floating upon supports (that are in-turn integral part of the foundations) and loosely coupled to the main construction, a protective method also used in aeronautics. The latter is done to avoid that less stable external foundations would jeopardize the main structure of the foundation.

Pressurized Cavity Drain
Despite the numerous preventive precautions for building waterproof cellars, we implement additional pressurized cavity drains (between the foundation and the concrete floor) to safeguard your living space from moisture and water. Van Welleman Villas® cellars are designed to be used as uncompromising living environments that can be used for an underground cinema, a lounge-bar, your snooker, a sauna … or all of them together, as is the case in the Van Welleman Villas® demo-house.

Elevator Backbone
An elevator shaft acting as a constructional backbone consisting out of fiber-reinforced concrete for enhanced strength can be provided optionally. All pressure points are also steel-reinforced. In the case of an additional grenade protection, the elevator backbone will -by default- consist out of fiber as well as full steel-reinforced concrete. The latter provides the shaft with the additional tensile strength required to deviate the shock-wave.

All-supporting Walls
In traditional residential constructions the internal walls are either 9cm (non supporting wall) or 14cm (supporting wall). At Van Welleman Villas® all walls are 14cm (standard) or 17cm (optional). This ensures maximum rigidity, safety, as well as acoustical comfort. As an example, after grinding a 9cm wall to install switch boxes the residual thickness disappears, creating acoustic leakage. With 14cm walls the residual thickness remains 5cm (8cm residual thickness for 17cm walls) preventing acoustic leakage.

Two-stage Utility Entrance through External Technical Ducts
Leading utility-cables and tubes (e.g. electricity, gas, Internet …) directly through the cellars’ concrete wall, is a potential breach (i.e. tube-bending leading to leakage around the tube). That is why Van Welleman Villas® opts for a two-stage pass-through using an external technical duct. The duct isolates the second pass-through from the bending forces. Optionally the ducts can be equipped with leakage detection for environments with a high risk of flooding (e.g. regions below sea level or nearby a river).

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