Introduction

Why does one need an architectural inspection? An architectural inspection determines the architectural quality of a house. It is done through a visual examination of all parts of the house, which means that nothing is broken away to examine a construction. This is done, because destructive examination results in damage that needs to be repaired. The inspection is carried out in accordance with present standards and requirements.

Architectural quality

In an inspection, two main components of the house are assessed:

1. Quality of the materials used in the entire construction, and assessment of any damage.
2. The ageing of materials in relation to age, use, and life span.

The assessment is carried out by an architectural inspector, knowledgeable in present standards and material requirements. If any part is difficult to assess, the inspector will make an estimate based on his knowledge. It is important, to hand over to the inspector as much information as possible about the house and its construction.

In the report, every part is assessed separately, and all materials that were found, are listed. The condition of every part is indicated, which shows which actions should be undertaken at short notice, and what the costs of these actions are. All costs in the inspection report are exclusive of VAT.

Condition assessment

To quickly gain insight in the condition of a part, the report uses codes:

1 = newly built quality
2 = first signs of ageing, not alarming
3 = signs of ageing become more apparent, but no actions required
4 = poor condition, action is necessary
5 = cosmetic

These codes relate to three aspects: the functioning of the part, its degree of ageing, and the basic quality of the materials that are used in the construction. Often, these aspects are intertwined, but that is not always the case.

Condition 1:

General: Newly built quality, or quality that equals newly built.
Functional: Functional defects (such as too much draught, too much humidity, or uselessness), caused by the ageing of materials and constructions must not occur or have occurred. Functional defects can occur, are those that are caused by external influences, such as gales.
Ageing: Defects that are caused by ageing, may not occur. On an incidental basis, insignificant mechanical damage may occur, that does not threaten the functioning of the part of the construction. As a whole, the construction part may show a modest accumulation of dirt. On an incidental basis, graffiti may occur.
Basic quality: High-end materials were used, the design was well done, and it was carried out professionally. On an incidental basis, a well-executed and durable repair can be found.

Condition 2:

General: Newly built quality, with the first signs of ageing.
Functional: In less favourable conditions, draughts may occur. Other functional defects, such as too much humidity, or uselessness, may not occur.
Ageing: On an incidental basis, defects caused by deteriorated materials may occur. As a whole, the construction part may show an obvious accumulation of dirt.
Basic quality: High-end materials were used, the design was well done, and it was carried out professionally. On an incidental basis, a well-executed and durable repair can be found.

Condition 3:

General: The ageing process has clearly set in throughout almost the entire construction.
Functional: Draughts may occur under normal circumstances. Too much humidity (such as leaks, wet patches, rising damp) caused by material or construction defects, may not occur.
Ageing: On an incidental basis, defects in materials or constructions may occur, that do not lead to functional defects. As a whole, the construction part may show an obvious accumulation of dirt.
Basic quality: There may a flaw in the design, details or execution. The materials that were used may be of mediocre quality. Well-executed and durable repairs may occur. On an incidental basis, a repair of lesser quality may occur.

Condition 4:

General: The ageing process has an obvious grip on the construction part. Repairs are necessary.
Functional: Regularly, too many draughts under normal circumstances may occur. Functional defects caused by ageing materials or constructions, such as too much humidity or uselessness, may have occurred on an incidental basis in the past year.
Ageing: Regularly, serious defects in materials or constructions may occur. On an incidental basis, these may lead, or have led to functional defects. Signs of erosion may occur all over. Parts that are not essential to the functioning of the construction, may have disappeared almost completely.
Basic quality: Structural mistakes in the choice of materials, design, or execution may cause or have caused functional defects, such as leaks, on an incidental basis.

Condition 5:

General: Damage to finishes, that is mainly of cosmetic nature. Cracks that have formed, and other damage do not interfere with normal use, but do need repair in the future.
Examples: Shrinkage cracks in stucco; cracking in tiling; contamination of walls, floors and ceilings; minor damage to painted surfaces; old/worn kitchen and sanitary installations.

General conditions and terms

General installations
The inspection is carried out by a building expert. To get more information on the installations, contact the regional utility companies and the regional water board.

Environmental aspects, materials containing asbestos
As asbestos cannot be seen with the naked eye, the report can only indicate the possible presence in the house of materials that may contain asbestos. *A separate asbestos inspection must be carried out by a certified company.* In houses that were built before 1991, the use of asbestos-containing materials used to be allowed, especially in down pipes, the sewage system, roofing, floor covering, and corrugated sheets. Sheet material may have been used anywhere.


Floor finish containing asbestos


Ventilation shaft containing asbestos


Garage ceiling containing asbestos


Storage room roof containing asbestos

The inspection cannot establish the presence of subterranean tanks, and it cannot establish if the ground is polluted in any way.

Reservations with regards to accessibility and costs estimates
The assessments in this report are based solely on visual inspections of accessible construction parts. No finish is removed, no calculations are made. This means that the conclusions in this assessment are of a general and provisional nature.

Hollow spaces and underfloor service voids are examined in the directly visible surroundings of the entrance hatch, if that hatch can be opened. If it is not possible to examine any construction part, this is mentioned in the report. As a part that cannot be inspected visually, may raise concerns, it is advised to have a specialist company do a thorough inspection. The maker of this report does not accept any liability for any damage of whatever nature, that can be linked to construction parts that cannot be visually inspected, unless the report states states otherwise.

This inspection report does not contain the list of information that is based on legal requirements with relation to information obligations, that the seller must sign for the benefit of the prospective buyer.

Although the maker of this report strives for completeness and a reliable approach and justification of, among others, estimated pilot prices and/or (re)building costs, he does not accept any liability for the bids of any building firm, installer, subcontractor, that the client may want to involve. The total assessment of the architectural condition of the complete house requires the consideration of the list of information, that the seller is legally required to hand over to the prospective buyer.

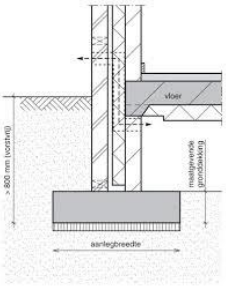
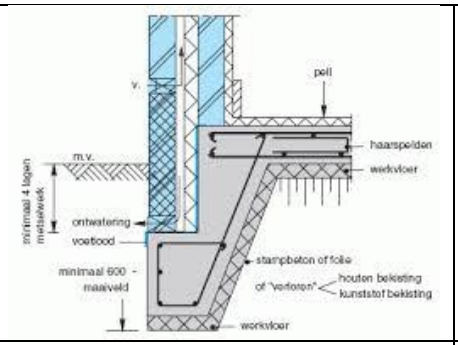
Note on part: Roof (outer shell)
Pitched roofs
In the Netherlands, most pitched roofs are covered with roof tiles. Over time, many different models have been used, each with their own qualities. The shape, texture and colour of the tiles are of great influence on the character and appearance of the house. In the Netherlands, roof tiles probably have a longer lifespan than any other roof covering. Sometimes, the older models show wet patches; these are of little consequence, if the tiles can dry up quickly because of ventilation underneath the roofing. Over time, dirt and nesting materials collect underneath the tiles, and these can impede ventilation. Every 35 years, many tiles must be cleaned and re-roofed, to guarantee ventilation underneath the tiles. If you consider insulating the roof from within, it is necessary to realise that, in many cases, the outside must be adapted as well (such as having a second water barrier installed underneath the roofing battens).

Flat roofs
Flat roofs with a bitumen coat usually remain waterproof for ten to fifteen years (some last even longer), if the edges and connections are checked regularly (every five to seven years), and the roof is rarely walked on. After the rain, some water may remain on the roof, but this is not detrimental to the roof covering. Especially near aluminium roof edges, cracks may form due to shrinkage and expansion of the aluminium. One should also pay attention to the connections to surrounding vertical constructions. Here, lead flashings are commonly used to make waterproof connections. By the time a flat roof needs a new covering, these lead flashings must be replaced a well. Gravel on flat roofs serves as ballast, and to protect the covering from ultraviolet radiation. Most modern coverings, however, do not need gravel as a protection from UV radiation. Roofs that are walked on frequently, had best be fitted with a pavement or wooden platforms. These should always be put on rubber supports, to protect the roof covering! For safety reasons, they should be equipped with a proper fence.

		
cracks in roof covering	*lead flashings must connect to both roofing and wall*	

Note on part: Facade and foundation (outer shell)
Facades and insulation
If cracks were found, the most likely cause is given. The cause can seldom be established with absolute certainty. If conservation of the construction requires repair of these cracks, a cost estimate is given. The presence of insulating materials in cavity walls and double walls cannot always be established visually; its quality cannot be established. If the surface of grouting is soft, it has to be replaced within ten to fifteen years. It is best, to replace the grouting together with the surrounding materials, as this will improve the looks of the house, and, in the case of massive walls, improve the water-repellent qualities of the facade. Be very careful with high-pressure cleaning and the use of water repellents on the facade. This often damages the bricks, and sometimes leads to an irreversible flaking off of the bricks. Open perpends (vertical joints) provide ventilation, and drainage of water, so they must be kept open. Ventilation grids in masonry must be carefully kept open as well.

Foundation
In the Netherlands, there are two types of foundation: pile foundations and footings (without piles). Cracking and subsidence may indicate whether or not the foundations are stable. On footings, foundations without piles, some subsidence is not unusual. With pile foundations, subsidence may also occur, but to a lot lesser degree. Subsidence may lead to severe damage, cracks are limited to tenths of millimetres.

		
traditional footing	*frost line*	*wood rot in foundation piles*

Note on part: Window frames and facade coats
Window frames, windows and doors
Window frames, windows and doors, including the ironmongery and draught protection, are assessed in terms of functionality in the actual situation and glazing. As to burglary protection: solid ironmongery will only work, if the house has at least impact-resistant glazing, or double glazing! Furthermore, visible measures are often better than invisible ones. It is nu use, to try and keep out a professional burglar – it would not work! But proper measures may help keep out the opportunist one.

Note on part: Balcony and roof terraces (outer shell)
Balconies and roof terraces
These parts are assessed in terms of construction (if possible), materials used (if possible), impermeability of the horizontal surface, and of the connections of this surface to the adjoining walls. It is assessed if they are walkable, and if the fence is safe. To assess this, the fastenings and the condition of the materials used are inspected.

Note on part: Roof (interior)
Roof construction
In the inspection, the connections and joints of the parts of the roof construction are assessed. Furthermore, it is established if any unprofessional repairs were made, that might endanger the stability of the construction.
Smoke ducts
If leaks are visible, they are reported, of course. Unfortunately, damage to smoke ducts is not always visible. Therefore, before use, smoke ducts should be swept and checked for gas-tightness by a certified company. This should be repeated every year. For your fire insurance, you should ask for a certificate from the chimney sweeper.

Note on part: Floors and walls (interior)
Cellar
A cellar must be watertight and adequately ventilated. However, it will always be a rather damp place. In assessing the quality of your cellar, we take into consideration the reason for its construction, For example: a seventeenth-century cellar is not intended for storing clothes, but is very well-suited for the storage of wine and waterproof packed food. In houses, cellars are usually intended as storage rooms. Moisture on the walls or from the floor can sometimes be prevented by applying watertight stucco on the inside. If a cellar really has leaks, however, injection of water-repellent into the floor and walls may remedy that, but it is rather costly, and success can often not be guaranteed.


moisture on cellar walls, often due to a lack of ventilation, regularly due to leaks

Underfloor service void and ground floor
The inspection of underfloor service voids is done from admission hatches, with the use of a lamp. Underneath the ground floor, many houses have an underground service void, that was originally intended to ventilate the wooden floor from underneath, and keep it clear of moisture rising from the ground. This would prevent mould growth and wood rot. Make sure that the underground service void is always sufficiently ventilated! With wooden floors, this is essential for the preservation of the floor, and it will have a positive effect on the humidity of the atmosphere in the house.
The underground service void should not contain any water, but that cannot always be avoided. If that space contains water often or all of the time, especially the steel electricity and central heating pipes must be inspected regularly for rust. Make sure that the underground service is always accessible. So, if you put down floor tiles, planks or a parquet, make sure that you make hatches that allow access to the underground service void. The ground floor should be as air- and watertight as possible, to prevent moisture from flowing into the house.

insulating blankets in Tonzon underground service void

Kwaaitaal and/or manta floors

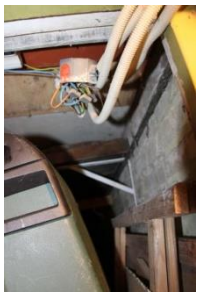
A Kwaaitaal floor is a prefabricated floor, made of reinforced concrete, that was used a lot in the Netherlands, from 1975 till 1983. The floor parts were made by the Kwaaitaal company in Rotterdam, and they were used throughout the Netherlands. To make the concrete harden faster, calcium chloride was added. Floors that had been cast in the morning, could be taken out of the moulds in the afternoon, after which new floors were cast in the moulds. This doubled the production. The calcium chloride that had been added, corroded the steel inside (concrete degradation). The rusting and expansion of the steel pushed the outer layer of the concrete off, exposing the steel, which, in turn, speeds up the concrete degradation, and makes the floor lose strength. Especially humid underfloor service voids add to the risks of problems with Kwaaitaal floors. There are specialist companies, that can inspect and repair these floors.


damage to Kwaaitaal floor

Storey floors
I assessing storey floors, loading capacity and fire safety are the most important factors. As furniture becomes heavier, for example water beds and fitness machines, problems can arise in older houses with wooden floors with light constructions.

Note on part: Installations
Installations general
Installations are examined strictly visually; we do not do measurements or capacity checks. Therefore, the assessment is provisional and indicative. We advise to have the regional energy provider give a safety advice. Their inspectors know al the latest requirements, and they have all necessary measuring instruments.
Tap water installation
Lead pipes are no longer allowed.
Sewage system
The sewage system can only be assessed in terms of functionality. Its quality and material usually cannot be assessed.
Heating
Have the heating system work in its present state for at least a year. If you want to replace it, you can do so based on your own heating costs, and not those of the previous owner. The differences are often substantial! The heating system can only be assessed in terms of functionality and age. However, sometimes, assessment in terms of age cannot be done. If they are regularly maintained, central heating boilers have a lifespan of ten to fifteen years. They often last longer, but their efficiency tends to go down substantially. The quality of separate heaters can rarely be assessed. Where possible, plumbing and taps are visually inspected for leaks.
Interior gas pipes
The gas pipes, especially in the underfloor service void, are inspected for rust.

Electrical installation
The electrical installation must be big enough and safely installed, and it should be grounded.
As of around 1975, earth leakage switches are obligatory, and they increase the safety even more.
Unlike a group safety fuse, an earth leakage switch is there to protect the individual, instead of the electrical installation. It is advisable to connect not only washing machines, but also other heavy machinery, such as laundry dryers, dishwashing machines, ovens and heating plates to a separate group. Steel tubes are admissible, if the junction boxes are accessible, and if the tubes are seamless; old wires with linen or rubber insulation may not be used and must be replaced, as is the case with old switches, which are made of porcelain or Bakelite. Electrical wire spaghetti in unprofessionally installed junction boxes is very dangerous (risk of fire due to electrical overload) must be replaced with single core wire in tubes, and, if necessary, the capacity of the installation must be increased.



unprofessional installation of electrical wiring

Central mechanical ventilation
The mechanical ventilation systems that were installed in houses from the 1980's onwards, were intended to control the interior environment (humidity and pollution).
These systems are found mostly in houses that were built from the 1980's onwards. They are essential to the quality of the interior environment, especially because these houses are airtight and well-insulated (as required by law), which strongly increases moisture and pollution inside, which then has to removed by adequate ventilation. Ventilation is to be seen as an investment, without which insulation and protection from draughts are utterly useless. Allow the installation to work! Increase its capacity and close the outside doors and windows in the spaces that are ventilated – you do not draw the discarded air back inside.
If possible, we advise to clean all ventilation parts and openings once every year. Cooking smells cannot be contained with even the strongest cooker hood. To remove those smells, all windows should be opened for at least five minutes after the dishes have been washed. A good ventilation system does not cause any nuisance to the people living in the house, which means:

- Entry openings are placed in rooms above 1.8 metres above the floor. They can be regulated, are burglar-proof, do not allow the rain in, and limit the air speed to less than 1 m/sec; (this makes clear that open windows do not meet these criterions; therefore, windows are not ventilation openings!)
- Air is extracted from the humid spaces in the house (kitchen, bathroom, toilet) continuously.
- The flow of air is restricted to what is absolutely necessary, to limit loss of energy. Therefore, the entry capacity is tuned to the exit capacity of the system. As a rule, the system will not have sufficient capacity to also accommodate a burner fan, laundry dryer and/or cooker hood with outside exit. If these appliances are installed, every extra entry opening should be compensated for with an entry opening of the same capacity. (In modern boilers, this is solved with the use of a closed burning chamber with entry and exit.)



moulds on bathroom ceiling; bathrooms in particular need proper ventilation

Note on part: Finishes
Ceilings
The ceiling under a wooden floor must be fire-resistant. The present standard says that it should take 20 minutes, before the fire eats through the ceiling. This can be achieved with a ceiling composed of drywall. Softboard does not offer any fire resistance, wooden laths may hold for up to 10 to 15 minutes, depending on the quality. PVC laths should not be used at all, as they give off toxic fumes and burning drops in a fire, and a ceiling made of that material hardly offers any fire-resistance. It is not obligatory to replace unsafe ceilings, but it is highly advisable. In the application for a building license, take the local requirements into account. If you do not want to replace an unsafe ceiling, you should consider installing fire alarms, means of escape, and fire extinguishers. Take note: the issue is not that the construction should not burn at all, but to give you enough time to become aware of the danger, and to find safe refuge. Furthermore, the construction should also offer some safety for some time to firemen and rescue workers.
Fixed wall and floor finishes
Tiling, (decorative) plasterwork, parquet, and other fixed finishes are assessed visually. Only if a finish does not fulfil its original function, it is reported. No repair costs are listed, as repairs are strongly dependant on personal taste, but these costs will increase the total costs needed for refurbishment.
Paint and glazing
The window frames, doors and windows in the facade, and the panelling must be protected by a coat of paint that touches the glass on both the outside and the inside. Even vulnerable pinewood frames from the 1960s and 1970s can last for decades, if they are well maintained! Most covering products have a maintenance frequency of once every four to six years; transparent products will last for only two years. If you want to do the painting yourself, you should consider the following rules, to achieve a proper result:

- Putty and glass sealant must not show any cracks, and stick well to the glass and the wood, to prevent water from seeping in, and dryrot. Use only silicon-free, non-hardening glass sealants. Paint will not stick to silicon-based sealants, and hardened sealant cracks open and loses it sealing capacity.
- In the early years, insulating double glazing often was not ventilated, and it was often sealed with inadequate glass sealants. This can lead to damage to both frames and glazing. This kind of glazing should be removed, and be re-installed in its frames with proper ventilation and adequate glass sealant.
- To ensure proper bonding, the surface must be properly degreased, and stripped of any loose remains of old coats of paint. Bare wood must be prepared first according to the instructions of the paint manufacturer. The inside of facade frames must be treated as if it were on the outside of the house. Usually, other paintwork inside the house is not important for the preservation of the construction.

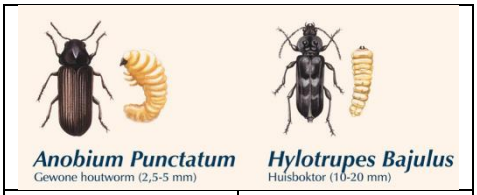
Sanitary facilities
Every house should have at least one flush toilet, one wash basin and one shower (both with hot and cold running water), all connected to the sewage system. Sanitary are assessed for their hygiene, ventilation and, if necessary, water-tightness around the sanitary installations.
Kitchen
There should be at least one 150 cm long kitchen counter with sink, and a tap with hot and cold running water, plus a gas cooker stand. The kitchen is assessed for its operating safety, ventilation and hygiene. Any kitchen equipment is not checked for functionality. Ask the seller for any deficiencies or defects, and for the original documents (user manuals and warranty cards).

Note on part: Living comfort
The term living comfort refers to the living climate inside the house. There must be sufficient ventilation, and draught excluders. This aspect is estimated, as the ventilation requirements and the actual ventilation are not calculated.

Note on part: Buildings and plot
Extensions
Extensions are assessed according to their present function and the quality of the materials used in their construction.

Fences
In many cases, fences are common property of the owner and one or more of the neighbours. Any estimated costs for fences indicate the total estimate for repair or replacement.

General notes
Insects and moulds
The wood in a building can be infected with wood borers (common furniture beetle, deathwatch beetle, and European house borer) or moulds (*Serpula lacrymans*, and cellar fungus). The common furniture beetle is the most prevalent of these infections, and the least damaging one.



common furniture beetle	European house borer

These infections are easily diagnosed by the presence of tiny holes, especially in soft wood. The infection rarely compromises the stability of the construction, and can be fought with certain chemicals and gases. The presence of the other wood borers cannot be established as easily, as they hide beneath the surface of the wood, and as they are less numerous, they are not as conspicuous. Their bigger size and voraciousness, however, can cause greater damage than the common furniture beetle. In most cases, the damage can be repaired, but the costs strongly depend on the extent and the place of the damage; this makes it impossible, to assess the damage. The damage should definitely be repaired by professionals, and should be backed up with a proper warrant of at least 5 years.

Mould damage is a very serious affair, but, unfortunately, it can only be established when most of the damage has already been done. If these infections are not fought sufficiently, they will come back. The costs for repair and fungicidal measures strongly depend on how far the infection has progressed, and therefore, it is not possible to estimate the costs. If these infections are found, it is advisable to cancel the purchase, unless the seller agrees to repair the damage, and if the seller provides sufficient guarantees. If any trace of infection by insects and/or moulds are found, they had best been fought by major specialized companies.

mould

Concrete degradation
The number of degraded concrete constructions increases. This is due in part to poor initial quality of the material, and, in part, to poor execution of the work, but also because constructions that were regarded as sound in the past, have proven to not live up to our expectations. In a number of cases, the pollution of our environment plays a role - amongst other factors.
After the nineteen-eighties, it has become common knowledge that concrete degradation occurs in ground-level floors produced by, among others, Kwaaitaal and Manta, that were installed in the nineteen-seventies. The degradation may be so severe, that an increased load may cause danger. If these floor are installed, we advise to have them investigated, in order to get a realistic idea of the extent of the damage, and of the necessary repair costs.

concrete degradation

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