

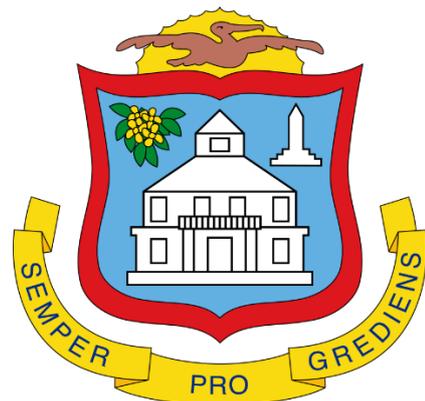
MANUAL



Vs. 1.8

September
2021

for the correct application of the
National Building Decree and Building Code BC0
for Sint-Maarten
in design, elaboration, plan-evaluation, execution and
inspection



Introduction

VERSION 1.8 d.d. 01-09-2021

As of **...** 2021, the new building regulation for Sint Maarten came into force. The current LBham – originally from 1935 – has been replaced by a new one, based on a completely different approach to buildings. This approach is comparable with the one in Bouwbesluit 2012, the current building regulation in the Netherlands and Bouwbesluit BES, which is applicable on Bonaire, Statia and Saba.

To prevent unnecessary costs regarding small buildings, formerly within the scope of Section I (Afdeling I) of the old LBham, buildings with less than 150 m² floor area, only one floor and a roof-elevation between 26° and 35° are excluded from the NBD through article 1.6. To compensate for this exception, article 1.11 directs a Building Code BCO (BCBCO) containing detailed ‘deem to satisfy’ prescriptions for these smaller buildings. Adding structural calculations to the permit application is not needed when a building is constructed following the rules in this Building Code BCO.

The main purpose of this Manual is to instruct evaluators and inspectors of the Ministry of VROMI how to apply these rules in permit granting and supervision on construction. The Manual may also be useful for architects, engineers and building-contractors in case they want to know how to deal with the NBD as well as the BCBCO in designing, engineering and constructing of new buildings and alterations and extensions of existing buildings. For the semi- or non-professionals, like ‘self-builders’, the CoP is supported by an example-book, named Building Code BCO Illustrations, consisting of explanatory illustrations of the regulations, and do’s and don’ts.

Before explaining the application of the technical prescriptions it might be useful to pay some attention to applying the rules of article 16 and 17 of the Building and Housing Ordinance. Both parts of the Manual begin with that issue.

Although the main users of this Manual are probably the designers and evaluators, the Manual also pays attention to the tasks of the inspectors. The final paragraph of each chapter or section contains advice on how an inspector must ensure the construction plan and the actual building, meet the requirements.

The first edition of this Manual is published immediately after the adoption of NBD and CoP by the Government of Sint Maarten and also intended as a training book before the new regulations enter into force. If the training shows the Manual requires adjustment, this will be implemented, if possible before the entry into force of NBD and BCBCO. The Manual is produced on behalf of VNG International by the engineers Patrick van Loon and Sid Torabi (City of Rotterdam) and Gert-Jan van Leeuwen (Xaro Consult). For further details and explanation – in Dutch! – of certain parts, please refer to the Praktijkboek Bouwbesluit 2012 (ISBN 9789012134248, also downloadable – *but NOT printable!* - via <https://www.rijksoverheid.nl/documenten/richtlijnen/2011/10/05/praktijkboek-bouwbesluit-2012>

However, Vakmedianet b.v. – a publishing house with several newsmedia, magazines and books in the areas of construction, architecture and building regulation in its portfolio – offers the department of VROMI two copies of books supporting the Dutch Bouwbesluit 2012. These books are:

- | | |
|--|------------------------|
| - Bouwbesluit 2012 met toelichting en commentaren | ISBN 978 94 93196 36 0 |
| - Handboek Bouwbesluit 2012 | ISBN 978 94 93196 37 7 |
| - Verbeelding Bouwbesluit 2012 Brandveiligheid | ISBN 978 94 93196 40 7 |
| - Verbeelding Bouwbesluit 2012 Bouwfysica | ISBN 978 94 92610 92 8 |
| - Verbeelding Bouwbesluit 2012 Algemeen bouwkundig | ISBN 978 94 92610 91 1 |

Although, all these book are only available in Dutch and explicitly meant to support the correct application of the Dutch Bouwbesluit 2012, several parts of the explanation and illustrations could

help to clarify the meaning and application of several parts of the new NBD as well. For those who like to buy these titles, the ISBN-codes are mentioned.

The idea to base the new NBD for Sint Maarten on the mentioned Dutch Bouwbesluit 2012 is not made by VNG International or the authors of this Manual. It originates from a decision of the Ministry of VROMI in 2014 to comply with the responsibility of St. Maarten to establish its own building regulations after the dissolving of the Netherlands Antilles as of 10 October 2010.

The first concept of the new NBD was produced by a consultancy firm named LievenseCSO, but it was never formally adopted. After the devastating hurricane Irma in September 2017, the Government of Sint Maarten asked VNG International to assist the Ministry of VROMI to complete that concept, especially with standards regarding structural safety related to wind loads and earthquakes. This assistance has been realized in close cooperation with the VROMI-departments Policy, Permits and Inspection and private architects, engineers etc. participating in meetings in May 2018 and 2019 and e-mail communication in between.

Bookmark

This Manual uses the same format as the NBD and then goes into the BCBCO separately. The Building Code BC0 Illustrations are produced by GeoDesign n.v. Sint Maarten, also on behalf of VNG International. The current Ordinance and the former Building Decree are only available in the Dutch language. The new NBD as well as the Explanatory Note and the BCBCO are also available in English.

Instructions on how to apply the NBD and BCBCO in the daily work as evaluator or inspector are colour-marked in this Manual **light-red for the Permits Department**, *light-green and in italics for the Inspection Department*.

As mentioned, the Manual may also be useful for architects, engineers and building-contractors. As a matter of fact article 7 paragraph a of the Building Ordinance goes further: anyone who builds or get built a construction (contractor and principal) is obliged to take care that their construction meets at least at the technical requirements (in the NBD and BCBCO). In other words: it is primarily a duty for everyone to comply with the technical public regulations - a lower limit!

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PART I NATIONAL BUILDING DECREE

A General explanation regarding article 16 and 17 of the Building Ordinance

As soon as an application for a building permit for Building Class 1 or higher is received it is necessary to check whether the application is in accordance with article 16 (and 17) of the Building Ordinance, paragraphs 1 and 2. As regards article 16 paragraph 2, see Part II of this Manual.

Article 16 Paragraph 1

The applicant should submit an application form mentioning his or her first name, surname, occupation and residential address and a (set of) drawings(s) scale 1:100 showing:

- 1° Foundation, roofs, attics, beam layers, floors and stairs as well as bearing walls (> 5°), pillars, etc. and structural calculations. These need to be approved by the independent third party as explained in Sections 2.1 and 2.2 of this Manual. The government must receive – as necessary attachment of the application – the report of this independent expert including the required approval as well as the drawings and calculations approved by this expert. Permits Department checks these documents only in case of doubt as to the accuracy of the approval.
- 2° Floorplans, elevations and sections.
- 3° The height level of the ground floor (relative to sea level or to the crown of the public road at the site of the construction site.
- 4° Number and dimensions of the rooms, stairs and portals.
- 5° The thickness and composition of the inner and outer walls (>1°).
- 6° Natural lighting and ventilation.
- 7° Number of floors.
- 8° The situation of the building and distances to the public road and the neighboring buildings (by means of a drawing of the complete building plot that also gives information about differences in altitude, water courses, etc.).

The issues mentioned under 2 until 8 need to be controlled against the articles of the NBD other than in Sections 2.1 and 2.2 of the NBD (and this Manual).

In the event that the building is a house, **article 17** of the NBD shall also apply, which means that the drawings should also contain information regarding water supply, removal of water, dirt and feces, and on the drawing of the plot also the route, width and construction of the road and the open spaces meant in articles 12, 13 and 14 of the Building Ordinance.

In the event the application including all necessary particulars and documentation is incomplete or partially incorrect the Permits Department informs the applicant about these shortcomings and shall fix a time limit within which the application is completed and/or corrected.

B General explanation regarding structural safety in the National Building Decree 2021

The new NBD is just as the former one: “entailing general measures, containing technical regulations for building and demolishing construction works as referred to in article 19 of the National Ordinance entailing regulations regarding building and (public) housing (Building and Housing Ordinance)”. This ordinance is originally from 1935 and will be modernized shortly. That modernization maybe will lead to some adjustment of the NBD as well as to the BCBCO. Of course, this will be done according to the legal prescriptions regarding preparation, advice, adoption and publication. If necessary this Manual will be adjusted too.

Unlike the Dutch Bouwbesluit 2012, the regulations concerning fire safety for Sint Maarten have not been laid down in the NBD but separately in the Besluit Technische Brandpreventievoorschriften

(BTB), also only available in Dutch so far. This BTB will be modernized, but for the time being it is slightly different in terminology from the one in the new NBD.

ARTICLE BY ARTICLE EXPLANATION

CHAPTER 1 GENERAL PROVISIONS (Chapter 1 and 6 of the National Building Decree)

Section 1.1 General (Definitions)

This section contains the definitions of the terms that are used in the NBD.

To be able to use the NBD, the different functions must be determined first. The NBD contains the following use functions:

- Residence function
- Meeting function
- Cell function
- Lodging function
- Educational function
- Healthcare function
- Other user functions
- Construction, not being a building

One, or more than one, function must be chosen to be able to apply the regulation of the NBD. For example, a school contains an educational function (classrooms, corridors, toilets etc) an office function (the administration office) and a meeting function (the teachers room). All area's must be checked for the regulations of that specific function. Areas that are used by more than one function (for example the central hall) must be checked for all the regulations for the different functions. The function with the normative regulation must be applied to that area.

With the term "ancillary function" a function is intended that serves another function. For example, a garage next to a house. The garage is there because of the house and not the other way around. In a residential building only residential functions and ancillary functions (for example the parking area for the cars) are allowed.

When all the areas are assigned to a specific function, the building must be divided in function area, function space or living space. Living space is for the areas where people stay in for a considerable amount of time, with a minimum of 2 hours. In function space the presence of people is a minor part of the use of that area (for example a garage). Less regulations are applied to function space in comparison to the living space. In chapter 4 minimum dimensions are given for the living space. For the function space no minimum dimensions are given.

When all present functions and spaces are determined, the regulations of the NBD can be applied to the building. Below we give some examples of the different area's used by the NBD.

USE AREA

$$UA = A - B + C$$

A floor area within the partition construction

B reduction in floor area with:

- net height <1.5 m (no stairs or ramp)
- stairwell or void larger than 4 m²

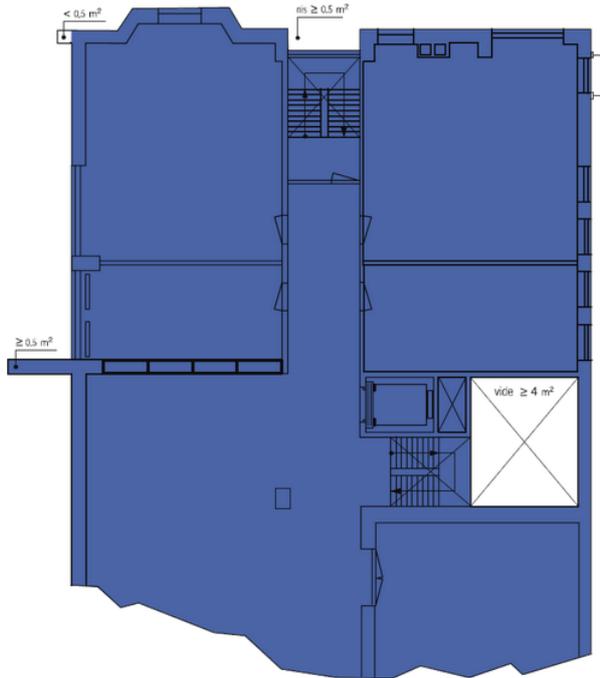
- elevator shaft (regardless of size)
 - load-bearing inner (indoor) wall
 - separate construction (no stairs) $> 0.5 \text{ m}^2$
 - pipe shaft $> 0.5 \text{ m}^2$
- Not in consideration: separate niche or recess $< 0.5 \text{ m}^2$
- C** = proportional share of common spaces or areas



Floor AREA

The area of a floor must be determined as the area of the vertical projection on the horizontal plane. Floor areas must be expressed in square meters (m^2).

Floor area is the same as BVO (bruto vloeroppervlak = gross floor area) as defined in standards like NEN2580.



Use area in combination with an accommodation building:

A traffic space can be a communal space of, for example, an accommodation building and a meeting function.

The proportional distribution must then take place through the accommodation building as one fictitious building.

This means that the addition only takes place for the meeting function and not at the accommodation building.

Example

- A common traffic space of an accommodation building and a meeting function has one usable area of 50 m²,
- the meeting function has a usable area without a common circulation space of 200 m², and
- the accommodation building, also without a common circulation space, has a usable area plain of 800 m².

The usable area of the meeting function is then:

$$200 \text{ m}^2 + 200 / (800 + 200) \times 50 \text{ m}^2 = 210 \text{ m}^2.$$

The usable area of the accommodation building remains 800 m².

The same applies to a residential building as to an accommodation building.

A residence area may therefore *not* include:

- a toilet room,
- a bathroom,
- a technical room, or
- a traffic space.

The drawings belonging to the permit-application must indicate the various indications of use, areas of use and useable areas of use.

Of course, checking the correct allocation of functions and areas is also the beginning of the assessment of an application for a building permit.

Article 1.2 Equivalence provision

When designing a building it is possible some rules cannot be applied in the exact way the NBD is formulated. For example, the minimum dimensions for a toilet room according to article 4.6 are 0.9 x 1.2 meters. A smaller toilet room can have the same amount of safety, health protection, usability, energy efficiency and protection of the environment when a non-traditional toilet-bowl is used, but a toilet with the water reservoir built in the wall. The decision if an equivalent provision can be applied is up to the competent authority. A private party applying for a building permit can ask for applying an equivalent provision, but it's up to the competent authority to decide if the provision really is equivalent to the regulations of the NBD. In the Netherlands the “adviescommissie toepassing en gelijkwaardigheid bouwbesluit” (www.atgb.nl) has an overview of equivalent provisions based on the Dutch Bouwbesluit 2012.

This requirement also applies to application during execution.

Section 1.2 Special provisions

Article 1.3 allows – in case of renovation, alteration or extension of an existing building – to deviate from the prescriptions for construction of new buildings, but no lower standards is allowed than prescribed for existing buildings.

In the absence of the latter provision, derogations may be made up to the level obtained by law: normally based on a prior building permit. (only (sub)paragraphs 2.1.2, 2.3.2 and 5.1 provide for such requirements)

In a partial renovation of alteration of an installation (chapter 5) a lower standards than obtained by law is not allowed.

In case of complete renovation of an installation (chapter 5) the prescriptions for new buildings are in force.

In case of fundamental restoration as defined in article 1.1 paragraph 1, no exemption is allowed to the prescriptions for new buildings.

For example, when a school building is extended and the existing building has an internal height of 2.2 meters, the Minister may allow that the extension also have the same height and not the height of 2.3 meters according to article 4.2.

Article 1.4 says the owner or user of a building must ensure installations(s) as mentioned in chapter 5 perform according to the relevant prescriptions, are managed, maintained and controlled adequately, and used in such a way that danger to health or safety does not exists or continue. The article can be used by the competent authority when unsafe situations are detected and no specific regulation is available in the NBD.

Article 1.5 directs the division in building classes in accordance with the consequence classes in the Eurocodes, mentioned in article 1.6 until 1.10.

Article 1.6 defines Building Class 0. When a building falls under this article, the other articles of the National Building Decree do not apply except section 2.5 regarding prescriptions for stairs. For Building Class 0 article 1.11 directs the deem obligation to satisfy prescriptions in the Code of Practice, further explained in Part II of this Manual. All buildings are divided into different structural classes. Structural class 0 are the simplest buildings like single floor houses. On the other side of the spectrum, structural class 3 contains the most complex buildings like hospitals and large hotels.

Articles 1.7 until 1.10 contain the same definitions as the Eurocodes for CC1, CC2a, CC2b and CC3 referring to the relevant Dutch standards EN-NEN, but the mentioned building-types show, that these definitions have other consequences on an island like Sint-Maarten with far-reaching consequences of natural disasters, situated in a hurricane belt and a region with seismic activity, and with an economy largely depending on the tourist-industry, which is far-reaching affected by natural disasters.

The task of the Permit Department regarding Section 1.2 is mainly to control if the application and annexes (drawings, calculations, etc.) correspond with the Building Class and relevant prescriptions.

Tasks of the Inspection Department

Generally a task of the Inspector regarding Section 1.2, visiting a building under construction, is to check if the type of 'architectural intervention' in reality corresponds with the application on a building permit and the conditions mentioned in that permit. If not, the Inspector has to inform the permit holder about it and to warn that this deviation must be removed to prevent withdrawal of the permit. For instance:

- *Is the intervention a partial or fundamental renovation?*
- *Does the building really belong to the Building Class mentioned in application and permit, or does it belong to a higher ranked Building Class with higher requirements?*

For structures in building class 0 the "Building Code BCO" (article 1.11) applies.

Structures mentioned in building class 1, 2a, and 2b must, according to article 1.12, be assessed by an independent third party and this assessment must be part of the submission documents belonging to the application of a building permit.

For building class 3 buildings these assessment documents must also be submitted, but also a report of the supervision of the structural work carried out on the execution of the structure.

In article 1.1 the definition of an independent party is stated.

Section 1.3 Construction work procedures

Article 1.11 directs the Code of Practice for Building Class 0 as inextricably linked to the National Building Decree.

As explained in the introduction of this Manual the new building regulations require a drawing added to the application of a building permit, this differs from Section 1 (Afdeling 1) of the former Landsbesluit. This drawing must have scale 1:100 and must contain:

- a. the basic geometry of the plot and the placement of the building: length, width, distances between outer walls and edges of the plot in cm¹, average angle of inclination of the plot in ° (if it is not flat);
- b. the location of the public road; limitation of any open water surface present; north arrow;
- c. floor plan of the building with basic geometry: outer length, width, heights of the roof base and ridge, internal clear height per room and in cm¹, roof-elevation(s) in; height measurements relative to floor level;
- d. facades with indications of windows, doors, and heights of gutter and ridge;
- e. in the case of a house: the number of bedrooms to be realized in the house. (this information is necessary to fix the number of parking places);

In case of a permit-application for an assumed BCO building the surveyor must control:

- 1^e whether the drawing meets these requirements;
- 2^e whether the building does not exceed the maximum floor area of 150 m², the range of roof

pitch between 26° and 35°;
 3° whether the angle of inclination of the plot does not exceed 15°; if in doubt, this must be checked on the spot;

If the drawing does not meet one or more of these conditions, one could allow the submitters to approve the plan fit and to inform them, that otherwise a new application must be submitted, meeting the requirements and procedures for Building Class 1 etc., as defined in article 1.7 until 1.10 of the NBD.

The building permit for a building in BC0 must inform the applicant / permit holder, that the execution of the plan must meet the prescriptions in the Code of Practice and that some regulations may cause the necessity to submit calculations and drawings for certain construction parts, at least three weeks prior to the execution of those parts. (*Prefabrication is part of the execution, of course!*)

Article 1.12 prescribes the obligation to involve an independent third party to review in case of BC1 until 3 the structural design, calculations and drawings and in case of BC 3 also to supervise the realization of the structure of the building. In Chapter 2 this Manual gives further explanation how the surveyor has to apply this article and others regarding structural safety.

Article 1.13 is specifically included to facilitate the Inspection Department to fulfil its tasks at the right moment. It could be useful to repeat this article in every building permit.

Before starting constructional work or when completing it, the *Inspection Department* must be informed. This must be done at least two days before the works starts and at latest the day of completing the constructional work. Article 1.13 says it must be in writing. This can be in the form of a traditional letter, but when the *Inspection Department* agrees, also by email, telephone or fax. The notification at the start of the constructional work is meant to give the *inspectors* the time to check if all requirements are met. The notification at the end of the construction process is meant to give the *inspectors* the possibility to check if the building has been built according to the permit and the regulations of the NBD before the building is put in to use.

Tasks of the Inspection Department

Article 1.13 facilitates the Inspector to plan his or her work especially at the beginning and the end of the realization process.

The Inspector can and must stop the work on behalf of the Minister if:

- a) a permit is necessary but not applied for or not yet granted (formal reason); or*
- b) the realization deviates from the application and permit; (technical reason or spatial planning); or*
- c) the methods of realization are causing immediate danger.*

Article 1.13 under 2 requires the permit holder and/or the contractor to inform VROMI at least five working days prior to proposed delivery in order to facilitate the Inspector to check whether the building is ready for use (= according to the permit and other requirements). Without this report or in the event of unacceptable deviations to the requirements occupation of the building is not allowed.

On request of the permit holder the Minister can allow partial occupation of a building to the extent that this part of the building complies with all the requirements relating to this part and its use according to the findings of the Inspector.

Chapter 6 of the National Building Decree contains transitional and final provisions, which are also of a general nature. Especially article 6.1 – hardship clause – is important for both the Permits and the Inspection Departments.

In the event the requirement to meet an article in the National Building Decree or the Building Code BCO would lead to unfairness of a prevalent nature, the Permits Department can advise the Minister to deviate from that article or leave it out of application. Such a deviation of the regulations should always fit with the objectives of National Building Decree and the Building and Housing Ordinance.

In the event a situation as mentioned above occurs after granting of the building permit during the realization of the building the Inspector should request the Permits Department to follow the same procedure in consultation with the Inspection Department.

CHAPTER 2 TECHNICAL CONSTRUCTION REQUIREMENTS FROM THE SAFETY POINT

Section 2.1 General strength of the building construction and

Section 2.2 Strength in case of fire

These sections contain great differences with the former approach of structural safety on Sint-Maarten. Following an advice of the structural engineers in meetings in May 2018 the methodology of the Eurocodes (mentioned as NEN-EN 1990 etc.) is introduced for the more risky buildings in terms of casualties and economic damage in case of failure of the building. Failure means: collapse in whole or in part, blown-off roofs, parts of the facade and frames, and other type of damage or deformation that make it impossible to use the building. In the definitions in Chapter 1 (article 1.7 – 1.10) and the Explanatory Note is explained how and why the Consequence Classes in the Eurocodes are applied to the situation of Sint Maarten.

Putting into practice of this chapter on Sint Maarten is mainly left to private players: the engineer responsible for the structural design and its effects in calculations and drawings, as well as the independent third party, mentioned in article 1.12.

Nevertheless, it is necessary for the Permits department to check:

- If there is indeed a proper third party involved in each building-project, that belongs to Building Class 1 and higher as prescribed in article 1.12.
- Does the third party mentioned in the application form really exist?
- Does this third party have relevant references regarding the actual project?
- Does the third party have an independent position in relation to the project, the designing parties, the contractor, the suppliers, the client?

Furthermore there might be reasons to check the content of the evaluation of the structural design, calculations, drawings and – as far as BC2b and BC3 concerns – also the evaluations of the actual construction-works.

- Are these evaluations relevant with regard to the structure of the building?

- What about the follow up by the designer and the contractor?

For all buildings belonging to Building Class 1, 2a, 2b and 3, as defined in articles 1.7 – 1.10, the role of the independent third party regards at least the evaluation of the structural design and its further elaboration in terms of structural calculations and drawings.

The structural drawings etc. added to the permit-application must correspond to the third party's assessment lot. if not, the plan assessor (Permits Dept.) should ask for clarification from the permit

applicant. Only if a difference between plan and evaluation is, according to both the applicant and the third party, subordinate, will the minister decide which solution to implement. This will be done through a condition in the permit.

In the event the third party evaluates the construction negatively on several aspects or in its main form without these conclusions being incorporated in the design and the elaboration, the application shall not be eligible for authorization. If this happens the plan must be adapted in accordance with the conclusions or another third party must be involved.

Tasks of the Inspection Department

For buildings belonging to Building Class 3 the third party must also be involved to supervise the structural safety of the construction, including strength at fire. The VROMI-inspector is advised to cooperate with this third party because the supporting parts of a construction are inextricably linked to the other parts of the latter and the requirements to which they must comply. It is possible, that the third party is a firm established abroad. To execute the supervision-task the firm could involve a local expert, but it could also be possible to involve the Inspection Department to execute the supervision on the building site. Then an agreement between the firm and VROMI is necessary to prescribe the exact tasks of the inspector including the communication with the firm abroad etc. and of course business aspects such as pricing, invoicing, planning, etc. These arrangements are beyond the scope of this Manual.

- *For buildings belonging to Building Class 1, 2a and 2b the supervision on the building site is an important part of the inspector's duties. This is mainly a matter of checking the construction is carried out in accordance with the permit and the approved drawings.*
- *If not, the permit holder must be asked to explain and prove that the deviations comply with the requirements. It must be certain that the designing structural engineer as well as the independent third party both agree with the deviations and that these correspond with the requirements in NBD and Eurocodes.*
- *In the event that the inspector has doubts about the correct detailing and execution, the designing structural engineer and/or the independent third party must be consulted.*
- *If it is found that the construction as it is carried out does not meet the requirements, the realization of the building must stop until a solution is found, acceptable according to the mentioned experts and the Minister.*

Section 2.3

Separation of floor

A floor partition is a construction that offers protection against falling from a floor.

This one partition can be a fence from a balcony, but it can also be the outside wall of a building.

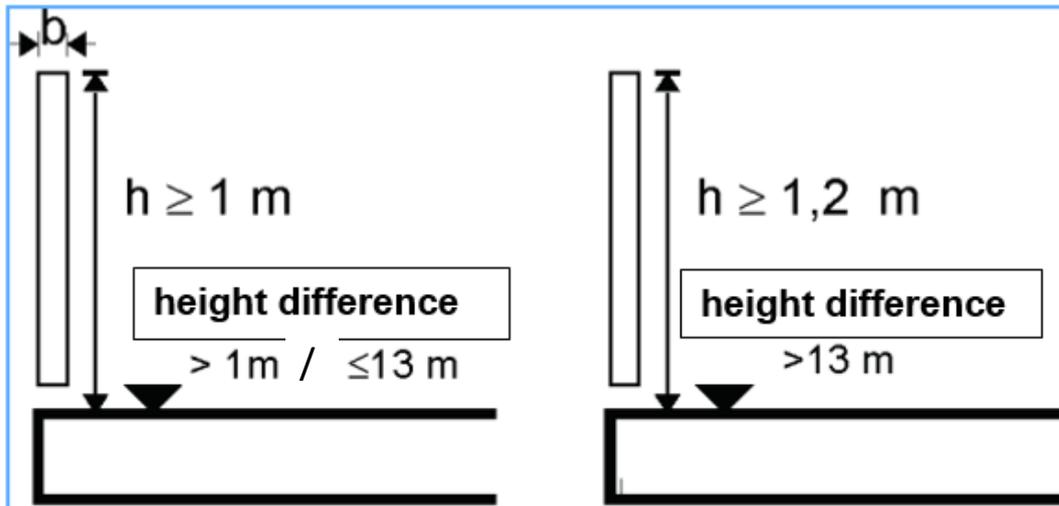
A floor is: when a horizontal plane that, under normal circumstances, is accessible to humans. A roof, a windowsill or a window cleaning strip is not a floor in the sense.

A floor of an attic or a mezzanine floor on the other hand, does count as floor.

(this floor also counts in the determination of the usage area of a usage function).

attention:

If an escape route leads over a roof, that roof or the part of the roof over which the escape route goes are classified as a floor

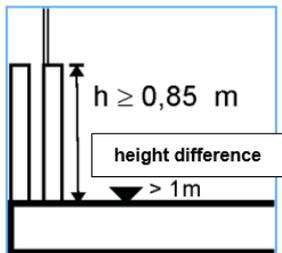


Exceptions:

- Meeting function (no childcare)
- Sports function
- $h + w > 1.1\text{m}$ only if $h > 0.7\text{m}$
- Cell function $h > 1,2\text{m}$

No Exception when Floor $> 13\text{m}$

Floor separation not in place of a window (new construction)

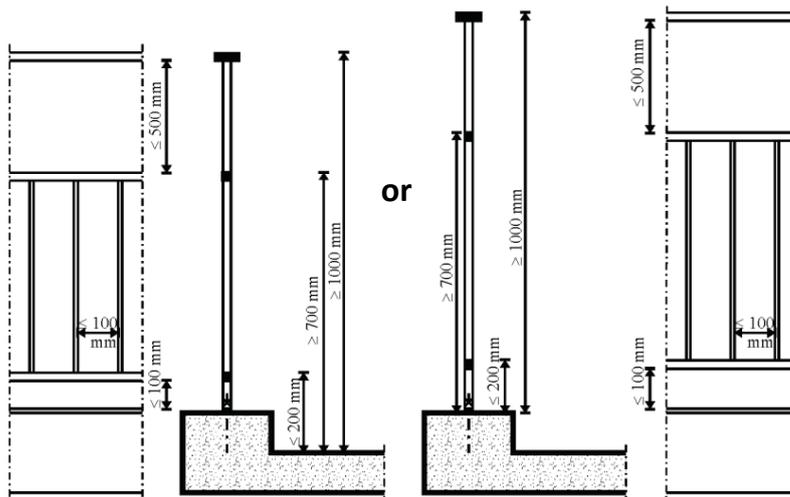


Floor separation in place of a window (new construction)

Attention:

A French balcony is not a window, but a door. The height of the gate for such a door must be sufficient to the requirements of a floor partition that is not located at the location of a window.

Openings and over-clambering



Balcony or gallery fence of a residential building

When a top of an elevation of a floor, for example with a balcony floor, is less than 500 mm, the top of the elevation is not considered as a floor.

Also a window sill that is installed at a height of 700 mm above the floor and has a width greater than 500 mm is not a floor.

This windowsill cannot be walked on or stepped on in a normal way.

A maximum permissible width of an opening in a partition means that a sphere with this diameter may just pass through that opening.

Section 2.4

Bridging of height differences

When a height difference between 2 floors is more than 0.21 meters, this floor is bridged by a fixed staircase or a fixed ramp.

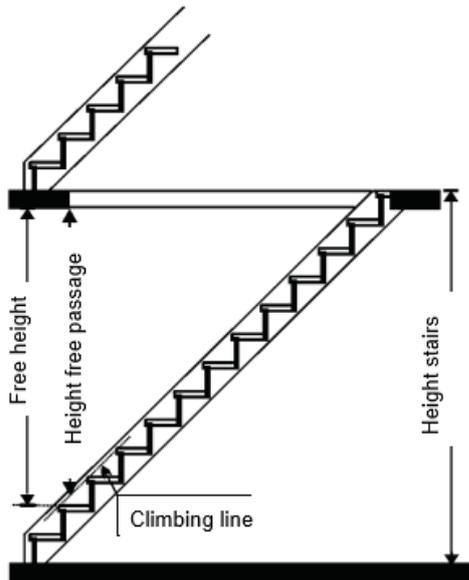
Note: this also applies to between a floor and the adjacent terrain

Section 2.5

Stairs

When the landing in new construction has the function of a staircase to pause so as to avoid increasing the height to more than 4 m, this landing must connect to the floor and stairs.

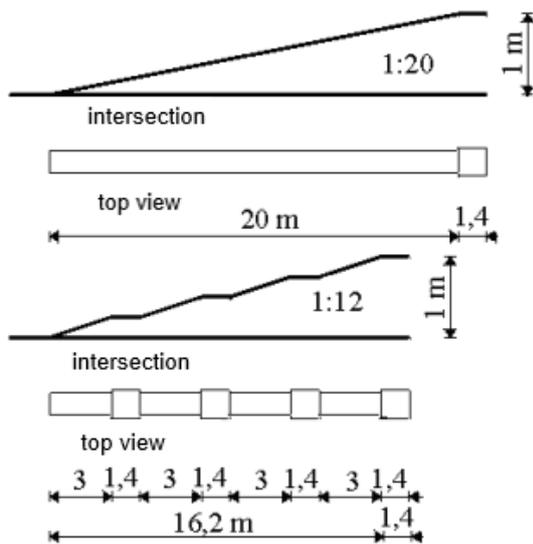
Dimensions of the stairs, landing and handrail can be found in articles 2.18, 2.19 and 2.20

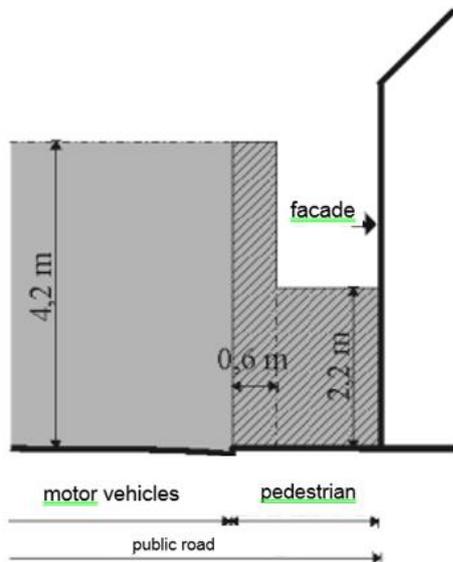


Section 2.6

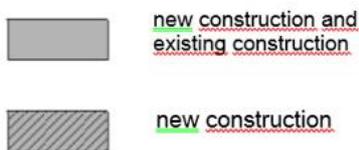
Ramp

Dimensions of the ramp, landing and handrail can be found in articles 2.22, 2.23 and 2.24





area within which a movable construction part is not allowed for:



CHAPTER 3 TECHNICAL CONSTRUCTION REQUIREMENTS FROM THE VIEW OF HEALTH

This chapter has 3 subjects: Ventilation, protection against rats, mice and other vermin and the presence of daylight.

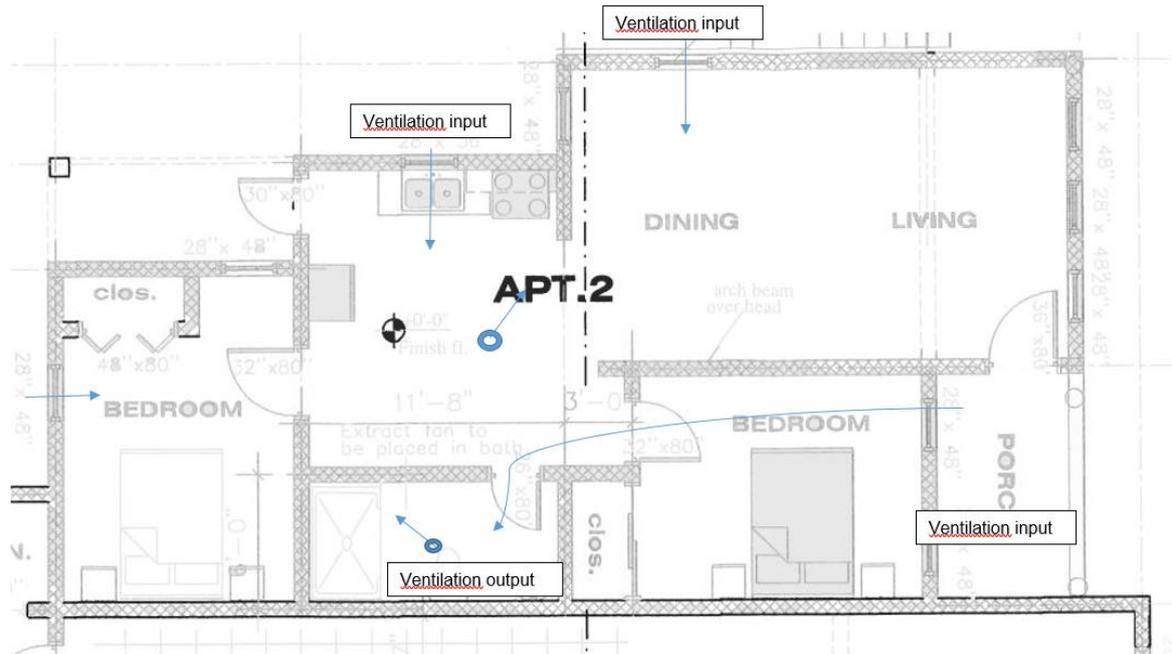
Section 3.1 Air exchange

In this section the regulation for air exchange for buildings to be built can be found. In this section there are different regulations for living spaces, toilets, bathrooms, traffic spaces, installation rooms, elevator shafts, storage rooms for household waste and for parking spaces for motor vehicles. Spaces adjacent to an external partition construction must have a window that can be opened. The opening has to be at least 1/15 of the floor space of that living space.

For spaces that are not adjacent to an external partition construction it is not possible to exchange air by opening a window. Those spaces must also be ventilated according to the capacities mentioned in article 3.2 and 3.3. In most cases this will be done by mechanical ventilation. The air capacity that is used to exchange air in a toilet or bathroom may not be used to exchange air in another room in the living space. A calculation of the needed capacity must be submitted by the application of the building permit

To provide indoor air quality, more attention should be paid to:

- The quality of the air supply;
- The capacity in relation to pollution of the indoor air;
- Establishment of a facility for ventilation;
- ventilation with combination of air conditioning;
- Preventing an unwanted and unhealthy situation.



Section 3.2 Drainage provision

Next to the normal air exchange capacity, a building must also be able to drain contaminated indoor air. You can think of a pan of rice that has been on the stove without enough water. To quickly drain this contaminated air, this can be done by opening a window or a door. This window or door has to be at least 2 meters from the plot boundary. This is to ensure the drainage facility will always be able to function like it's meant to and to prevent nuisance to the neighbours.

Section 3.3 Protection against rats, mice and other vermin

In this section the requirements for preventing rats, mice and other vermin to enter a building and make nests in small openings are given. Openings larger than 0,01 meter (1 centimetre) are not allowed. This does not apply for openings and discharges of drainage facilities for air exchange, gas or smoke discharges an aeration of a disposal facility for household waste. These facilities can't function with such small openings. These openings must be fitted with fine-meshed grills or non-return valves. **In the documents for the permit application this must be stated by means of explanatory text and during construction the inspector of VROMI must check if these measurements have been taken.**

To prevent vermin to dig under a building a screen must be applied to a depth of at least 0.6 meters measured from the adjacent ground and this screen may not have openings larger than 0,01 meter. **In the documents for a building permit this must be made clear in the section-drawings.**

Article 3.9 gives the regulation to prevent mosquitos, termites and white ants to multiply or affect the structures. **These are aspects that must be checked by the inspector of VROMI prior to the construction of the building.**

Section 3.4 Daylight

Sufficient window surface must be available to all structures that are built. Only for the residential function, lodging function, a residence area or living space it is mandatory that these areas are located next to an external separation structure. The total amount of window area has to be 1/15th of the floor space of the living area. Mind that windows used for draining contaminated air have to be

at, at least 2 meters of the plot boundary. The same complies to windows that are used to meet this regulation for daylight. In this way it is prevented not enough daylight will enter the building when a new building is built on the adjacent plot closer to the plot border.

CHAPTER 4

Section 4.1 Residence Area and accommodation area

In this section the minimum dimensions (length, width and height) of residence area are given. As explained above, 55% of the use area must also be residence-area. With this regulation it is prevented that large parts of the building are assigned as use area with a low amount of regulations and a low quality of usability. These dimensions must be checked by the permits department.

Section 4.2 Toilet room

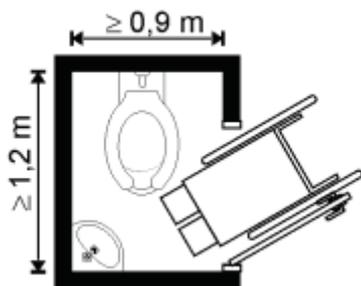
This section is only for new constructions. New building must have toilet rooms. Article 4.5 states the minimum number of toilet rooms that must be available, but take note of paragraph 2. No more than 30 persons may be assigned to 1 toilet room.

So, when a building is used by 92 persons, (this is $92/30 = 3.06$) that means at least 4 toilet rooms must be available. This must be checked by the permits department.

When you have a building with more than one user function, per user function the minimum amount of toilet rooms must be checked. For example, in a school the educational function requires 20 toilet rooms, the lunch area (meeting function) requires 2 toilet rooms and the teachers offices requires 2 toilet rooms. This totals 24 toilet rooms, but the entire building only needs 20 toilet rooms because these 20 toilet rooms are also available for the users of the office and meeting function.

Toilet room dimensions

A compulsory non-integrally accessible toilet room must have a floor space of at least 0.9 m x 1.2 m and above that one height of at least 2.3 m. This toilet room can be designed as a visitable toilet area.



Visitable toilet room

Section 4.3 Reachability and accessibility, new construction

Free passage and free passage of traffic route are regulations to ensure that a residence area, a living space, a toilet room, a bathroom and a space for reaching a lift have sufficient dimensions. Also, a route from these areas must have the same dimensions of at least a width of 85 centimetres and a height of (mostly) 2.3 meters. These dimensions are necessary to ensure these rooms can be accessed in a proper way and in case of an emergency, the users of these spaces can flee outside the building without problems. Common traffic spaces must be wider than non-common traffic spaces (1.2 meters vs 0.85 meters)

For the permits department these dimensions must be visible on the drawings.

Articles 4.10, 4.11 and 4.12 are the regulations that make sure certain buildings are accessible for persons with a handicap. These articles also provide the basis to determine if an elevator is required in a building.

A residential building must have an accessibility sector if the highest floor of a residence building is higher than 12.5 meters above measurement level or when more than 3500 m² of use area is located at, at least 1.5 meters above measurement level. In these cases common traffic routes have to be 1.2 meters wide and there must be a floor space of at least 1.5 meters x 1.5 meters in front of a lift, at the entrance of the residential building and in a common traffic space when a wheelchair cannot access the adjacent site without turning.

Height differences in an accessibility area greater than 2 centimetres are bridged by a ramp or a lift. In theory, the height difference of multiple stories can be bridged by a ramp, but this ramp must have dimensions according to section 2.6. This means these ramps will be very long so a lift will be easier.

Besides the routes in the accessibility sector a building with an accessibility sector must have integral accessible toilet rooms and bathrooms according to the table in article 4.7.

For the permits department it must be visible on the drawings which parts of the building are part of an accessibility area. This can be done by a hatching on the drawings.

For the inspection department: all height differences higher than 2 centimetres in an accessibility sector must be bridged by a ramp or a lift. Take note of door frames in the accessibility sector. When the sill of a frame is more than 2 centimetres higher than the floor a ramp must be installed.

All written above is also applied to non-residential buildings with more than 400 m² of use area. Take note that 3 shops with a use area of 150 m² per shop in the same building must have an accessibility sector because all use functions in one building have to be combined.

Only in an education function the entire building must be accessible. All other use functions must be accessible for 40% or 80% according to table 4.7.

The integral accessibility is an accessibility for everyone, so also for people in a wheelchair.

In addition, these regulations for communal traffic areas in a residential building are important role in being able to transport people with a stretcher, being able to move in opposite directions passing and being able to move large pieces of furniture.

An accessibility sector is:

“Part of a building that is integrally accessible for wheelchair users”

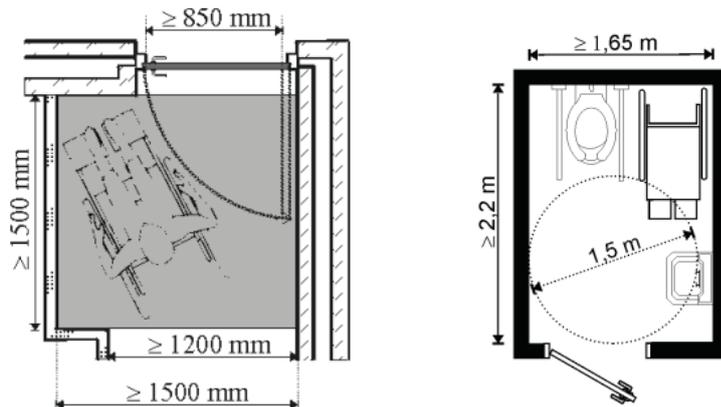
The accessibility sector of a building is therefore the part of the building that is fully accessible.

An accessibility sector may also be volunteered. Part of a building is classified as accessibility sector then that sector must be accessible from the adjacent site and must comply with limit values for:

- bridging a height difference in the accessibility sector, and
- the free passage of spaces located in an accessibility sector.

(What is meant by free passage is explained in 4.8)

Dimensions and necessity can be found in articles 4.7 to 4.14



CHAPTER 5. Installation requirements

Section 5.1 Disposal of domestic waste water and rainwater, new construction and existing construction

This section has regulation for new and existing buildings concerning domestic wastewater or rainwater. Toilets, bathrooms or other discharge devices are connected to a drainage facility that has sufficient capacity and is airtight and watertight. Every discharge device must be able to be emptied within 5 minutes.

When the drainage facility cannot, or has no obligation to be connected to the public sewer according to the waste water regulation, the drainage facility have to be connected to adequate collection facility. "adequate" means at least according to the dimensions in the table in article 5.2.

For the permits department: the drainage facility and the collection facility must be visible on the drawings. This can be drawn in general. Detailed information about the drainage and collection facility must be provided before installing these facilities. It is recommended that these details are provided at least 3 weeks before installing these facilities to the competent authority. *Installation can only be started after approval on behalf of the minister of VROMI.*

To ensure the roof of a building to be built will not collapse during heavy rain showers a provision for the collection and drainage of rainwater must be available. Again, this provision must be visible on the permitting drawings in general and detailed information can be provided during the construction process *and need to be checked by the Inspection Department.*

Article 5.2 – 5.6

To provide good building and site drainage, more attention should be paid to:

- type of use for drainage pipes of different materials
- minimum falls for drain
- calculation of foul water flow
- connection values of sanitary fitting
- pump insulation
- connecting pipes

- internal collecting drainage
- calculation rain water
- foul water stacks
- damp-proofing and tanking
- water pressure
- inspection shaft

And many other issues.

Dimensions and necessity can be found in articles 5.2 – 5.6

Pending the ongoing discussion on public sewerage and/or storage tanks and septic tanks with or without soak-away, regulation regarding waste-water collection and compliance of that regulation additional prescriptions might follow soon. If necessary these will have consequences for this Manual too.

Section 5.2 Safe maintenance of buildings, new construction

Article 5.8

This section is only applied to buildings to be built. To determine what “sufficient” safety provisions means is up to the minister. During the permitting process the permits department must check if maintenance of the building can be done in a safe way. When this can only be done with safety provisions like a windows washer lift or a stable surface for a cradle elevator these provisions must be present.

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PART II CODE of PRACTICE BC0 and SET of GUIDELINES

General explanation to the Code of Practice

As explained in Chapter 1 regarding article 1.11 of the NBD, for Building Class 0 the Code of Practice (CoP) more or less takes the place of Section 1 of the former Landsbesluit. More – because the maximum floor area of BBO is 150 m² instead of 100 m². Less – because article 1.11 prescribes certain restrictions regarding the pitch of the roof and the slope of the building site. A general drawing must be added to the permit application and prescribes also – if necessary depending on the nature of the plan and the building site – some structural calculations and drawings.

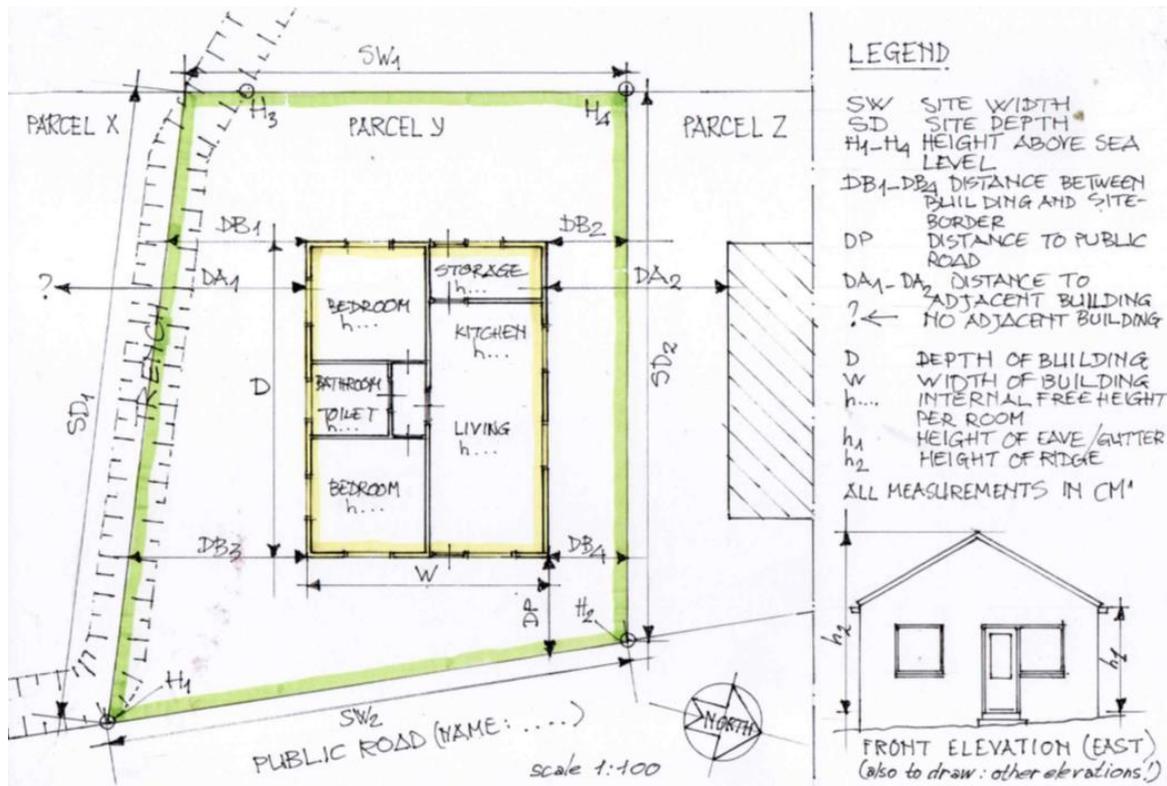
The general drawing as part of the permit application is prescribed in article 1.11 paragraph 1 of the NBD. The purpose of this drawing is to clarify the building:

- in terms of spatial planning,
- fire safety with regard to adjacent buildings,
- whether the building belongs to BC0 or not,
- whether it is clear or likely or not that the building contains structural components, that require involvement of a structural engineer as meant in article 1.1 paragraphs 3 and 4 of the CoP, and
- the number of sleeping rooms as a basis for determining the required parking space.

The next pages shows an example of such a drawing, that may be fairly sketchy provided that the dimensions must be reproduced as accurately and truthfully as possible.

Article 16 paragraph 2 of the Building and Housing Ordinance (Bouw- en Woningverordening) excepts the requirement in paragraph 1 of that article (and subsequently also those in article 17) for buildings < 100 m². However, the drawing mentioned in article 1.11 is another type of drawing as

explained above. Article 20 of the Building Ordinance is the formal basis to prescribe the general drawing.



Immediately after receiving a request the Permits Department should check if the drawing clarifies the five issues mentioned above. If the drawing is unclear, incomplete or partially incorrect the Permits Department informs the applicant about these shortcomings and shall fix a time limit within which the application is completed and/or corrected. If the drawing shows a building that exceeds the limitations of BC0, as given in the definition in article 1.11 NBD and repeated in article 1.1 paragraph 1 of the CoP, the applicant should be informed, that his or her application will be considered as one with regard to BC1 (or higher) and that the rules given in the NBD shall apply. *The Inspection Department should control whether the actual structure corresponds to the drawing submitted on which the permit is based. If the actual building exceeds the limitations of BC0, the work must be stopped until additional information has been submitted and approved, according the relevant requirements of the NBD*

Most of the prescriptions in the CoP are 'deem to satisfy'-requirements. As far as a building is realized exactly corresponding these prescriptions, then this is all right. In the event the nature of the building site leads to deviations, the prescriptions in the CoP are colour-marked and article 1.1 under 3 and 4 prescribe the procedure how to deal with these deviations.

A part of the events in which the mentioned deviations are likely, are to be expected during the verification of the permit application on the basis of the request itself and the details of the building location. The permit should mention these deviations and *the Inspector should check if and how the permit-holder deals with these deviations and the obligatory follow-up.*

Other possible deviations are maybe not foreseeable or at least not foreseen. When the inspector reaches such findings on construction work or just before delivery, he should check if and how the permit-holder has dealt with these deviations and the obligatory follow-up. In the event this is not clear or not in accordance with the prescriptions in the CoP the building is not ready for until as the

permit holder and the contractor can prove that the deviating structural solution meets the requirements.

With regard to stairs in BCO-buildings: Inside the building these are only allowed to arrive on a mezzanine or an attic with limited height, not suitable as residence function. Section 2.5 of Part I applies to outside stairs.

General explanation to the Building Code BCO Illustrations

The Building Code BCO Illustrations are not a part of the very building regulation on Sint-Maarten, but are meant to support the Building Code BCO, especially for those who build their own house or other building with restricted professional knowledge of building regulations and techniques. The BCBCO Illustrations can also be used by the **Permits** and **Inspection** Departments to explain the meaning of articles in the BCBCO. Therefore, an article by article explanation of the Code of Practice is considered as not necessary.