PRÉFET
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Direction de l'Environnement,
de l'Aménagement et du Logement de Guadeloupe
Unité territoriale de Saint-Barthélemy et de Saint-Martin

PREFECTURE OF SAINT-BARTHÉLEMY AND SAINT-MARTIN

Natural Risk Prevention Plan

NRPP

Revision of the hurricane hazard

Overseas Collectivity of Saint-Martin

Regulation

DOCUMENT APPROVED
by prefectoral decree no. 2021-252 of 3 November 2021

Natural Risk (cyclonic) Prevention Plan - COM Saint-Martin
Regulation approved by prefectoral decree no. 2021-252 of 03 November 2021
Territorial Unit of Saint Barthélemy and Saint-Martin (TU SBSM) of the
Environment, Development and Housing Agency (DEAL) of Guadeloupe
23, Rue de Spring - Concordia, 97150 Saint-Martin

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Chapter I

General provisions, scope of the Risk Prevention Plan

1. Regulatory framework

Law no. 95 -101 of 2 February 1995 enhancing environmental protection instituted the Risk Prevention Plan (here forth referred to as RPP). The legislative and regulatory texts are now codified in Articles L. 562-1 to L. 562-9 and R. 562-1 to R. 562-12 of the Environment Code.

These articles do not define the way in which the reference hazard is determined, nor the rules governing the choice of zones not authorised for construction, which, until now, were described only in circulars and guides. The major events experienced in France prompted changes to this regulatory context.

In the wake of storm "Xynthia" in 2010 and its dramatic consequences on the Atlantic coast, the Statement of 27 July 2011 supplemented and clarified the rules applicable to the factoring in of the coastal flooding risk in the Natural Risk Prevention Plans for coastal environments. Decree No. 2019 -715 of 5 July 2019 on Risk Prevention Plans concerning the "river and coastal flooding hazards", known as the "PPRi Decree", also falls within this context and supplements the existing legal framework with regard to flooding. It only concerns the drawing up of Natural Risk Prevention Plans (PPRN) relating to the river and coastal flooding hazards, which are the most widespread RPP in France. For these risk prevention plans, the methods for determining, qualifying and mapping the benchmark hazard, as well as the general principles of regulatory zoning and the rules concerning new constructions, are now codified in Articles R. 562 - 11 - 1 to R. 562 - 11 - 9 of the Environment Code.

For this revision of the hurricane hazard of the Natural Risk Prevention Plan of Saint-Martin, coastal flooding and mechanical wave impact have been selected. The RPP excludes tsunamis that originate from seismic phenomena or seabed shifts. The other hazards of the RPP (flood, earthquake, landslide, soil liquefaction) will be revised in a second phase with the launch of studies scheduled for 2022.

The revision of this foreseeable hurricane risk natural risk prevention plan, by the overseas collectivity of Saint-Martin, subject matter of this document, was prescribed by the prefectoral decree DEAL no. 2019-157 dated 12 March 2019.

2. Scope of application

This Regulation applies to the entire territory covered by the revised 2011 Natural Risk Prevention Plan for the overseas collectivity of Saint-Martin for the hurricane hazard.

Conforming with Decree No. 95 - 1089 of 5 October 1995 on foreseeable natural risk prevention plans, amended by Decree No. 2005 - 3 of 4 January 2005 in accordance with Law No. 87 - 565 of 22 July 1987, amended by Law No. 95 - 101 of 2 February 1995, itself amended by Law No. 2003 - 699 of 30 July 2003 relating to the prevention of technological risks, natural risks and damage repair, the State has prepared and applied plans for the prevention of foreseeable natural risks such as hurricanes.

Extract from Article L562 - 1 of the Environment Code:

"The purpose of natural risk prevention plans is:

#1 To delimit the zones exposed to risks, taking into account the nature and intensity of the risk incurred, to prohibit any type of construction, structure, development or agricultural, forestry, craft, commercial or industrial operation or, in the event that constructions, structures, developments or agricultural, forestry, craft, commercial or industrial operations could be authorised in these zones, to stipulate the conditions under which they must be built, used or operated;

#2 To delimit the zones which are not directly exposed to risks but where constructions, structures, developments or agricultural, forestry, craft, commercial or industrial operations could aggravate risks or cause new ones, and to provide for prohibition measures or regulations such as those provided for under #1;

#3 To define the preventive, protective and safeguard measures that must be taken, in the zones mentioned under #1 and #2, by the public authorities within the framework of their competences, as well as those that may be incumbent on private individuals;

#4 To define, in the zones mentioned under #1 and #2, the measures relating to the development, use or operation of constructions, structures, cultivated or planted areas existing on the date of approval of the plan that must be taken by the owners, operators or users. "

General principles and provisions of the Risk Prevention Plan

The general principles of prevention in the zones subject to a proven risk of flooding, which are presented, among others, in the bulletins of 24 January 1994, 24 April 1996 and 30 April 2002 and clarified by the Decree of 5 July 2019 as well as in the methodological guides relating to the preparation of flooding and coastal risk prevention plans, remain unchanged:

- the non-urbanised zones subject to the risk of flooding, at any level, remain protected against any development project so as not to exacerbate the critical factors in flood-prone zones
- the already urbanised areas must not be extended to flood-prone areas and the most dangerous sectors (high and very high risk zones) are not authorised for construction. In dense urban centres, however, in order to allow the management of the existing built-up areas (including "vacant spaces") and urban renewal, adaptations to this principle may be considered if they are duly justified in the presentation report of the risk prevention plan.
- in general, the vulnerability of urbanised zones must not be increased

The RPP assures the following objectives:

- To ensure the safety of people
- To not aggravate nor reduce the vulnerability of properties and activities in exposed zones
- To maintain, or even restore, the free flow of water
- To limit the effects of flooding

3. The effects of the RPP

3.1. Enforceability and planning documents

The risk prevention plan approved by prefectoral decree following a public enquiry constitutes a public utility easement (Article L 562-4 of the Environment Code). The public authorities are obliged to annex the RPP to the existing urban development plan if it is considered in the public's interest (Article 13 - 37 of the Urban Planning Code for Saint-Martin). When the RPP is instituted following endorsement of the urban development plan, it will be annexed by an updated decree issued by the president of the overseas collectivity of Saint-Martin within three months of the date of its enactment. Failing that, the prefect shall substitute the president of the collectivity. The beneficiary of a planning permission must comply with the building rules prescribed in the RPP in compliance with the provisions of Article L111.1 of the Construction and Housing Code.

It is not compulsory for planning documents to conform with the provisions of the approved RPP, but it is advisable in order to ensure consistency between land management rules particularly when they are not the same in the two documents.

In the event of contradictory provisions between the RPP and urban planning documents, the most restrictive provisions shall apply; thus in Saint-Martin, the RPP has precedence over the urban planning documents of the overseas collectivity of Saint-Martin.

This regulation sets out the provisions applicable to existing properties and activities, as well as to the establishment of all new constructions or installations, the execution of all works and the exercise of all activities, without prejudice to the application of other laws or regulations in force (urban planning and building regulations).

The provisions of the RPP shall also govern planning actions undertaken by the authorities. The departments in charge of urban planning and the application of land law shall manage the measures that fall within the scope of the Urban Planning Code. By committing to respect the rules when submitting a building permit, the project owners and the professionals in charge of carrying out the projects are responsible for the studies or provisions that come under the Construction Code.

3.2. Implementation of preventive measures

The law makes it possible to impose any sort of requirement on construction work and developments as well as on agricultural, craft, commercial or industrial operations. The nature and conditions of implementation of the preventive measures taken for the application of this regulation shall be defined and enforced under the responsibility of the project owner or the owner of the property and the project manager concerned by the constructions, works and installations in question. They are also required to carry out the management and maintenance necessary to secure the full effectiveness of these measures.

According to national regulations, the owners or operators whose properties and activities were established prior to the approval of the RPP, have a time frame of 5 years (which may be reduced in the event of an emergency) to comply with the measures provided for in this Regulation.

Following the report "Assessment of the natural risk prevention plan of the island of Saint-Martin draft" by inspectors Dominique Lacroix and Jean-François Desbouis of March 2020, the inhabitants of Saint-Martin are exempted from this provision, which therefore applies only to public access buildings (ERP):

- This means that, for properties and activities established before the publication of the act approving this plan, the owner or operator is **advised** to carry out the preventive measures provided for in this Regulation.
- For public access buildings, the owner or operator has five years to have a vulnerability study carried out by an expert (architect, assessor, etc.) as well as a risk study. In the absence of compliance within the prescribed time frame, the Prefect may, after a formal notice that has not been followed up on, order the implementation of these measures at the expense of the owner, operator or user *(see Chapter IV and the "Public Access Buildings (ERP)" glossary entry).*

According to Article R. 562-5 of the Environment Code, these measures may not exceed 10 % of the market value or estimated value of the property on the date of approval of this risk prevention plan.

Every opportunity must be taken to reduce the vulnerability of buildings already exposed by seeking solutions to ensure flood expansion and the safety of people and property.

The risk prevention plan applies directly to the examination of planning certificates and requests for authorisation to occupy or use the land: building permits, preliminary declarations, development permits.

The nature and conditions of execution of the preventive measures and techniques taken in accordance with this regulation shall be defined and implemented under the responsibility of the project owner or the owner of the property and the project manager concerned by the constructions, works and installations in question.

3.3. Major Natural Hazards Prevention Fund

Permanent provisions

Under Article L. 561-3 of the Environment Code, the measures made mandatory by an approved risk prevention plan (studies and works) may be financed by the Fund for the Prevention of Major Natural Risks (FPRNM) within the limits of its resources. Article R. 561-15 of the same Code specifies the applicable financing rates, namely:

- 20% of the eligible expenditure incurred on properties for businesses or properties used within the framework of professional activities carried out by individuals, companies or organizations with fewer than 20 employees (industrial, commercial, agricultural or craft businesses)
- 40% of the eligible expenditure incurred on residential or mixed-use properties

Measures that are merely recommended are not eligible for funding.

Temporary provisions

The Barnier Fund statement allows for contributions to the financing of studies and works, or preventative and protective equipment against natural risks, for which the regional and local authorities or their groups are responsible for the project management. This provision applies to the authorities covered by a **prescribed or approved** risk prevention plan.

3.4. Consequences for insurance and penalties

3.4.1. Insurance

Compensation for victims

Compensation for victims of natural disasters is governed by Law no. 82 - 600 of 13 July 1982 which requires insurers, for all fire damage policies and all other damage to property or to the bodies of land motor vehicles, **to extend their cover to the consequences of natural disasters, whether or not they are located in an area covered by a RPP**.

Where a risk prevention plan applies, the Insurance Code specifies that the obligation to provide cover is maintained for "properties and activities existing prior to the publication of this plan", except for those where the owner, operator or user has failed to bring them into compliance with the measures required by this plan.

Possibility of denial of insurance in case of violation of risk prevention plan rules

In addition, according to Article L 125-6 of the Insurance Code, insurers are not required to insure real estate built and activities carried out in violation of the rules of the RPP in force at the time of their implementation. In other words, an insurer is not obliged to cover the insured against the effects of natural disasters in respect of:

- properties and activities located on land classified as unauthorised for construction by an RPP - except for those existing before the publication of the RPP.

  This means that, in the case of **new constructions**: the insurer is not obliged to insure new constructions built in a zone declared not authorised for construction by the RPP. An owner who has a house built in a regulated zone must take into account the measures provided for by the RPP to be eligible for the insurance obligation.
- Properties built and activities carried out in violation of the administrative rules in force at the time aimed at preventing damage caused by a natural disaster.
  Thus, the insurance obligation applies to **existing constructions**, regardless of the regulated zone, but the owner must comply with the regulations (without delay for the inhabitants of Saint-Martin, within 5 years for public access buildings); otherwise, the insurance obligation no longer applies.

This possibility offered to insurers is governed by the Insurance Code and can be applied only on the annual expiry date of a policy or when a new policy is signed. In the event of a dispute with the insurer, the insured may refer the matter to the French Rating Office, the Bureau Central de Tarification (BCT), which is responsible for natural disasters.

Role of the French Rating Office (BCT)

The Prefect or the President of the French State Reinsurance Office, the Caisse Centrale de Reassurance (CCR), may refer the matter to the BCT when they consider that the conditions under which a property or an activity benefits from the cover provided for under Article L 125-1 of the Insurance Code appear to them to be unjustified in view of the insured's behaviour or the absence of any precautionary measures likely to reduce the vulnerability of this property or activity. In the latter two cases, the BCT applies special deductions to the compensation in order to reflect the insured's failure to meet their obligations.

The amount of the basic excess can be increased up to 25 times (Articles A250-1 and R250-3 of the Insurance Code). Depending on the risk insured, a property mentioned in the policy may be excluded. **If the owner cannot find an insurer, they can also refer the matter to the BCT.**

3.4.2. Penalties

Criminal penalties

Building or developing land in a prohibited zone under a RPP or failing to comply with the conditions of implementation, use or operation prescribed by this plan shall be subject to the penalties provided for in Article 62-1 of the Urban Planning Code of the overseas collectivity of Saint-Martin. According to Article L.562-5 of the Environment Code, violations of the provisions of the RPP are recorded by sworn civil servants, agents of the State or authorised public authorities.

Administrative penalties

When, in accordance to Article L 562-1 of the Environment Code, the prefect has made it compulsory to carry out preventive, protective and safeguard measures (title 3°) and measures relating to existing properties and activities (title 4°) and the persons responsible for implementing these measures have not complied within the prescribed time frame, the prefect may, after a formal notice has been issued without response, order the implementation of these measures at the expense of the owner, operator or user concerned.

4. Revision or amendment of the risk prevention plan

The procedure, and conditions for revision and amendment, of Natural Risk Prevention Plans are defined under Articles L. 562 - 4 - 1, R. 562 - 10, R. 562 - 10 - 1 and R. 562 - 10 - 2 of the Environment Code. The statement of 28 November 2011 relating to Decree No. 2011 - 765 on the procedure for drawing up, revising and amending plans for the prevention of foreseeable natural risks, specifies the terms and conditions for the use of these procedures.

Revisions

The revision of the RPP on all or part of the territory may be justified by a change in the hazard or vulnerability of the territory. The procedure and terms of the revision shall be the same as those that led to its initial preparation. Where the revision is only partial, the consultation and public enquiry is limited to

the communes (to the districts, in the case of the overseas collectivity of Saint-Martin) concerned by the revision.

Amendments

According to Article R. 562-10-1 of the Environment Code, the amendment procedure shall be used on the condition that the planned amendment does not affect the overall structure of the plan. In particular, the amendment procedure may be used to:

- rectify a material error
- amend a minor element of the Regulation or the presentation note
- amend the graphic documents delimiting the zones mentioned in 1° and 2° of II of Article L.562-1, to take account of a change in factual circumstances.

The last paragraph of Article L. 562-3 of the Environment Code is not applicable to the amendment. The procedure for amending the RPP is a simplified procedure that does not require a public enquiry. However, the draft amendment and the statement of rationale are made available to the public to enable them to make comments in the register opened for this purpose during the one-month period preceding the approval of the amendment by the prefect (Articles L. 562-4-1 and R. 562-10-2 of the Environment Code).

5. Precautions

✔ Given the different scales adopted for the preparation of the graphic documents of the risk prevention plan, the detailed mapping at a scale of 1 / 5 000 shall prevail for the definition of the regulatory easement in the event of slight disparities with the general mapping on the same sector. In addition, it will be the responsibility of the land law representatives to appreciate the margin of error of a mapping carried out at a scale of 1 / 5 000 in relation to the scale of certain urban planning documents. Additionally, the clarifications provided by incident studies at a more detailed scale from competent agencies and for projects bordering the constructibility limits defined at a scale of 1 / 5 000 shall be taken into account during the examination of planning documents within the limits of this margin of error.

✔ The regulatory requirements are applicable and enforceable against any public or private person as soon as the RPP is approved, or if applicable, as soon as the corresponding prefectoral order is published.

✔ Certain requirements may be covered by specific construction rules (foundations, structure, materials, etc.) defined under Article R.126-1 of the French Construction and Housing Code; the Code applicable to Saint-Martin is the 2012 National Construction and Housing Code. Responsibility for their application shall lie with the builders. When submitting applications for building permits, project owners undertake to comply with the general building regulations. As the professionals in charge of the projects, they are therefore responsible for the implementation of these requirements. In the event of non-compliance or infringements of the provisions of the plan, penalties are provided for under criminal law and the relevant insurance policies.

- ✔ The RPP regulation requires a declaration stating that the vulnerability has been reduced in the case of reconstruction, or factored in for any new construction; this certificate must be submitted with the application for a building permit.
  Effectively, the significant reduction in vulnerability must be justified by means of a certificate drawn up by the project architect or by an expert, attesting to the completion of preliminary geotechnical and structural studies, and stating that the project factors in these conditions at the design stage as applied by Article 46 - 21 paragraph 5 of the overseas collectivity of Saint-Martin Urban Planning Code.

- ✔ For the sectors likely to be exposed to natural risks not identified in the present RPP, the general prevention recommendations must be applied. These are minimum measures that must be followed throughout the territory. In this regard, it should be remembered that, if necessary, Article 11 - 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin should be used to regulate any construction project concerned by risks not identified by the presently approved risk prevention plan.

6. Regulatory provisions

6.1. Distinctive features of Saint-Martin

The zoning of the RPP is established on the basis of the rules set out in the general risk prevention plan guide of May 2014 and supplemented by the statement of 27 July 2011 on factoring-in the risk of coastal flooding in plans for the prevention of natural coastal risks and its annexes. The RPP delimits different zones, for which specific rules are defined. The regulatory transcription is done by intersecting the hazards with the identified critical factors, based on the elements of the national methodological framework, but also on the local work carried out in partnership from 2019 to 2021 to develop a Regulation adapted to the territory of Saint-Martin. The entire method applied to Saint-Martin is set out in the presentation report.

The services of the Environment, Development and Housing Agency (DEAL) of Guadeloupe and the Overseas Collectivity of Saint-Martin have expressed the wish to have a single Regulation combining the mechanical wave impact and coastal flooding hazards without taking account of climate change. However, the 2011 statement on the factoring-in of the risk of coastal flooding in the plans for the prevention of natural coastal risks requires climate change to be taken into account.

Extract from the Statement of 27/07/11 relating to the factoring-in of the coastal flooding risk in the plans for the prevention of natural coastal risks:

> *"In view of the strong foreseeable impact of climate change on the configuration of low-lying coasts, it is advisable from now on, in accordance with the recommendations of the national plan for adaptation to climate change, to integrate the impact of climate change on the "coastal flooding" hazard into coastal risk prevention plans. This is why coastal risk prevention plans will have to integrate a hazard calculated on the basis of the pessimistic hypothesis of sea level rise by 2100. "*

The peculiarities of Saint-Martin and the collaboration between the Environment, Development and Housing Agency (DEAL) and the overseas collectivity of Saint-Martin have allowed for this revision of the

RPP for the hurricane hazard to exclude the so-called "2100" hazard as imposed in the 2011 statement. The upcoming revisions and preparations of risk prevention plans in Saint-Martin (revision of other hazards or of the multi-hazard risk prevention plan) will, however, have to factor in this new “2100” hazard.

Similarly, the zones deemed to have no significant foreseeable natural risk are not mapped in this risk prevention plan. The unmarked zones, often referred to as "white” zones, are not affected by any regulatory provisions.

Additionally, to avoid multiplying the number of regulatory zones, the dark red and red zones can be affected by both a mechanical wave impact hazard and a coastal flooding hazard. This methodology was called for in order to come up with a revision of the RPP for the Overseas Collectivity of Saint-Martin for the hurricane hazard as soon as possible in the wake of hurricane Irma.

This Regulation defines the preventive, protective and safeguard measures to be taken by the public authorities within the scope of their powers, as well as those which may be incumbent on private individuals. The urban planning, building, safety rules, etc. remain applicable. Compliance with the usual building regulations (para-seismic rules in particular) must result in solid constructions (wind-resistant façades and roofs, suitable foundations and structural ties, etc.). Chapter III defines these measures in more detail.

The Regulation includes all the requirements applicable to each of the at-risk zones. The requirements are enforceable on any land use permit and the urban planning provisions must be included in the body of the administrative land use permit.

6.2. Characterisation of the regulatory zoning

The regulatory zoning is the transcription of the intersection between the technical studies, which led in particular to the preparation of the hazard maps, and the identification of the critical factors within the territory in terms of prohibitions, requirements and recommendations. Based on these principles, the territory covered by the Saint-Martin hurricane RPP has been divided into four zones to reflect urbanised and non-urbanised areas and the severity of the hazard.

Croisement Aléa X Enjeux		*Enjeux du territoire*			
		Zones urbanisées			Zone non urbanisée Dite **zone naturelle**
		Centre urbain	**Zone mixte d'intérêt stratégique**	**Zone urbanisée** Hors centre urbain et ZMIS	
Aléa cyclonique	**Faible** Hauteurs de submersion inférieure à 0,5m	Bleue	Bleue	Bleue	Rouge
	Moyen Hauteurs de submersion comprises entre 0,5m et 1m	Bleue	Bleue	Bleue	Rouge
	Fort Hauteurs de submersion comprises entre 1m et 2m et/ou choc mécanique des vagues	Bleu foncé	Bleu foncé	Rouge	Rouge foncé
	Très fort Hauteurs de submersion supérieures à 2m et/ou choc mécanique des vagues	Rouge	Rouge	Rouge foncé	Rouge foncé

The **dark red zone**:
The dark red zone is the result of the combination of non-urbanised areas with a very high or high coastal flooding and mechanical wave impact hazard, and/or urbanised areas (excluding urban centres and mixed zones of strategic interest) with a very high coastal flooding and mechanical wave impact hazard.

The red zone:
The red zone is the result of the combination of:

- non-urbanised zones with a medium or low coastal flooding hazard,
- and/or urbanised zones (excluding urban centres and mixed zones of strategic interest) with a high coastal flooding and mechanical wave impact hazard,
- and/or urban centres and mixed zones of strategic interest with a very high coastal flooding and mechanical wave impact hazard.

The **dark blue zone**:
The dark blue zone is the result of the combination of a high coastal flooding hazard with urban centres and mixed zones of strategic interest.

The **blue zone**:
The blue zone is the result of the combination of a low or medium coastal flooding hazard with urban centres, mixed zones of strategic interest and urbanised zones.

Unmarked zone, so-called "white" zone: On the basis of current knowledge of the risk, the “white” unmarked zone is considered to be without any foreseeable hurricane risk. This document does not include any regulatory provisions for this zone under the hurricane hazard 2021. Nevertheless, and particularly with regard to neighbouring plots that are at risk of submersion, it is advised to follow the provisions and recommendations recorded in the regulation and applicable to other zones wherever possible. Similarly, it is necessary to refer to the Natural Risk Prevention Plan 2011 for other risks (seismic, flooding, landslides).

Depending on the hazards that have determined the regulatory classification of the zone, different rules are therefore defined to prohibit or permit constructions and structures, works and developments, storage, leisure activities, as well as facilities and infrastructures. Concerning an application made under the Urban Planning Code, it is therefore necessary to look at the regulatory zoning map relating to the project as well as the hurricane hazard map.

Chapter II

Regulation of projects

1. Introduction

The provisions included in this Chapter II are planning or building regulations. They will cover:

- New projects
- Projects relating to existing properties and activities

All of these requirements only apply to operations authorised after the date of approval of the risk prevention plan requiring authorisation or a declaration under the Urban Planning Code (new constructions, reconstruction, raising of construction heights, extension, change of use, etc.).

**It is important to remember that, in addition to the provisions of this chapter,
all zones subject to the hurricane hazard are required to comply with the rules concerning:
PREVENTIVE, PROTECTIVE AND SAFEGUARD MEASURES
as set out in Chapter III**

Risk prevention plan and other regulations

Regardless of the provisions of this risk prevention plan, construction projects are still subject to the provisions of the Urban Planning Code and/or planning documents. Similarly, the provisions of the risk prevention plan do not prejudice compliance with other regulations in force (Water Law, Natura 2000, impact studies, etc.).

Siting

Generally speaking, developments that could increase the risk by aggravating the critical factors in the hazard zones must be prohibited or severely restricted. The implementation of any new project should be prioritised in hazard zones with the least possible risk.

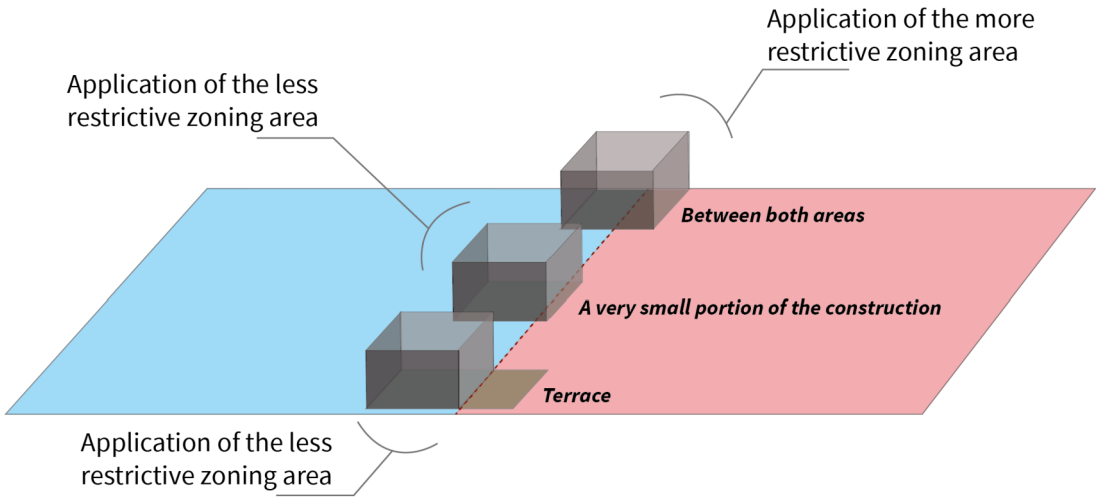
As with all risk prevention plans, regulatory logic dictates that, **in the event of contradictory rules, or directives having the same object, the most restrictive rule shall apply.** The rules applicable to any project are those related to the zone in which the project is located. Consequently, where the construction project straddles two regulatory zones, the **most restrictive rules regarding land use apply,** except**:**

- If the portion of the structure that is located in the more restrictive zone is insignificant, i.e. Less than or equal to 5% of the total surface,
  or
- If the portion located in the more restrictive zone is an uncovered terrace on the same level as the ground floor.

Order of zones by level of restriction:

Dark red > red > dark blue > blue

Example of application of the rule for a structure straddling a red zone and a blue zone:



Natural ground elevation

Any application for a building permit or development permit must show, at least on the site plan, the elevations of the natural ground before the works and the level of the low floors of the project (*see glossary "Natural ground"*).

Certificate

In accordance with the Urban Planning Code, from such time as the risk prevention plan requires a study to be carried out, any application for a building permit or development permit must be accompanied by a certificate drawn up by the project architect or by an expert attesting to the fact that the project factors in, at the design stage, the requirements imposed by the risk prevention plan regulation.

Compliance

The urban planning rules provide for a control during the examination of applications for urban planning permits and the Declaration Attesting the Completion and the Conformity of the Works (DAACT). The construction rules are the responsibility of the project owner and the project manager.

2. Provisions applicable in the DARK RED ZONE

The **dark red zone** is the zone where the risk is the highest and with the maximum level of danger. It is a zone exposed to the coastal flooding hazard, the mechanical wave impact hazard or to the combination of these two hazards. The objective of this zone is not to aggravate the risks and not to increase the exposed population and properties.

General principles of regulation within the zone:

- Reconstruction in a **dark red zone**: any building destroyed by hurricane Irma or by the last known hurricane hazard may be rebuilt. In all other cases, the new construction rule applies. Any reconstruction must include measures to reduce vulnerability and comply with the current planning regulations. The significant reduction in vulnerability must be justified by way of a certificate, drawn up by the project architect or by an expert, attesting to the completion of preliminary geotechnical and structural studies, and stating that the project has factored in these conditions at the design stage, in accordance with Article 46 - 21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin.
- New construction in a **dark red zone**: Only the construction of public and port infrastructure is permitted.

2.1. Authorisations in a dark red zone

The following list describes **all constructions permitted in the dark red zone, on the condition that:**

- ✔ **they do not aggravate the risks and their effects,**
- ✔ **they do not trigger new risks,**
- ✔ **and that there is no increase in the vulnerability of existing properties and activities and the number of exposed people.**

Among the **Constructions, structures, works and developments:**

- the **reconstruction of buildings destroyed** by hurricane Irma or by the last known hurricane hazard is permitted, subject to the following conditions:
  - ✔ it is not a sensitive facility (public access building of type R, J or U)
  - ✔ there is no increase in footprint and it is sited on the same land unit while prioritising distance from the sea front
  - ✔ there is no change of use other than a change that reduces vulnerability (*see glossary*)
  - ✔ that a certificate from the project architect or an expert is provided, as required under Article 46 - 21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies and the compliance of the project with requirements targeting protection against mechanical wave impact and washouts from the design stage, with the aim of reducing vulnerability
  - ✔ that the sleeping quarters are located at least above the referenced elevation
  - ✔ that the requirements relating to the building regulations, whether general or specific to the zone, are respected

- ✔ demolitions – reconstruction of properties damaged or destroyed by hurricane Irma or by the last known hurricane hazard are also permitted, in compliance with the building regulations, whether general or specific to the zone

- **Public and port infrastructure construction** is permitted.
- The **repair, maintenance and routine management of constructions and installations** are permitted (interior alterations, façade treatments and renovations, changes to the external appearance, roof repairs). The authorised works must be carried out respecting the existing footprint.
- Works strictly necessary for the **safety of public access buildings** and those intended to improve accessibility for people with reduced mobility are permitted, if there is no possibility of relocation.
- **Works, structures and developments** intended to reduce the consequences of the various risks identified (works to combat erosion, works to combat coastal flooding, retaining walls, etc.) in order to protect areas already built or developed areas are permitted. These works, structures and developments may be carried out:
  - ✔ for private **individuals**: as part of an overall development project, subject to a preliminary technical study on the coastal dynamics at the scale of the impacted bay, and with the provision of a certificate, drawn up by the project architect or by an expert, as required in accordance with Article 46-21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies, as well as compliance of the project at the design stage with the requirements related to it; without prejudice to the rights of third parties;
  - ✔ for **public services**: subject to a preliminary technical study on the coastal dynamics at the scale of the impacted bay and the provision of a certificate drawn up by the project architect or by an expert, as required in accordance with Article 46--21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies and the compliance of the project at the design stage with the requirements related to it; without prejudice to the rights of third parties;
- **Facilities and buildings necessary for the operation of public port infrastructures** are permitted in line with the requirements relating to the building regulations, whether general or specific to the zone.
- Authorisation is granted for **portable first aid stations and equipment requiring proximity to the sea,** for nautical activities and fishing, on condition of ensuring full transparency.
- **Slipways** built with removable devices that can be dismantled in the event of heavy swells and hurricane episodes are permitted.
- **Changes of use in order to reduce vulnerability** as defined in the glossary are permitted, in particular constructions dedicated to housing and hotel accommodation to turn them into constructions dedicated to other activities without sleeping quarters.
- **Individual parking lots** linked to an existing dwelling at the level of the natural ground are permitted, provided that they do not waterproof the natural ground and provided that they do not hinder drainage.
- **Collective parking lots** at the level of the natural ground are permitted, provided that they do not waterproof the natural ground and provided that they do not obstruct the run-off and that they effectively inform the public of the risks of coastal flooding. Water coming from parking bays must be treated (sludge trap, oil separator) before being discharged into the rainwater network.

- **Fences** are permitted, provided that they are openwork over their entire height, i.e. that they do not hinder flood water and that they allow for hydraulic transparency (non-open fences are therefore strictly prohibited).
- **Extension by raising the construction height** is permitted only for the purpose of making **existing buildings safe to be used as sleeping quarters,** subject to the re-qualification of the ground floor with a view to reducing the vulnerability of people (creation of a shelter), without increasing the accommodation capacity, subject to the durability of the building with regard to the mechanical wave impact and washouts; this extension must not exceed 25% of the floor area and is limited to 50 m².
- **Extension by raising the construction height** is permitted only for the purpose of making **existing buildings safe for commercial and industrial purposes** (creation of a storage area above water level), without change of use, and subject to the durability of the building with regard to mechanical wave impact and washout; this extension must not exceed 25% of the floor area and is limited to 50 m².
- **Works on private facilities and utility networks** are permitted (water, sanitation, electricity, telecommunications, etc.) on condition that measures are implemented appropriate to the risks, including those generated by the works, and in compliance with the general or specific requirements for the zone.
- **In-ground swimming pools and above-ground and removable pools** are permitted, provided they comply with safety measures to prevent drowning and eddies (water pocket swirls, a phenomenon in the event of submersion, in particular). For example: signage, non-removable plots or other measures Non-removable swimming pool enclosures are permitted provided that the total transparency of the flow of the flood water is ensured and their anchorage can resist the force of a hurricane (*see Chapter IV-1.3*).

Among the **Public facilities and infrastructure:**

- **Infrastructure works, technical networks** (water, sewerage, electricity, telecommunication, etc.) and installations necessary for the functioning of public services or services intended for the public, notably road or pedestrian service works, the installation of urban furniture provided that it is anchored in the ground, works for the creation of public transport in exclusive right of way, are permitted provided that the project owner takes appropriate measures in relation to the risks and warns the public by means of clear signalling.
- The creation or extension of a **wastewater treatment plant** is permitted, on condition that a certificate from the project architect or by an expert is provided, as required in accordance with of Article 46-21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of a preliminary technical study and the compliance of the project at its design stage, with its requirements targeting, in particular, protection against mechanical wave impact and washouts, and the protection of the wastewater treatment plant's sensitive equipment by installing them above the benchmark elevation.
- **Pumping stations** linked to a wastewater treatment plant are permitted.
- **Technical premises** necessary for the functioning of public services or services intended for the public are permitted.
- **Public toilets are permitted.**
- The development of **collective leisure areas** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage. Information boards and signs alerting the public to the risks shall be displayed.

- The development of **bathing pools that do not require earthworks and that can be disassembled** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage and that they are staked out by fixed posts located or visible above the reference elevation. Information boards and signs alerting the public to the risks shall be displayed. Pool enclosures that cannot be disassembled are permitted on condition that they ensure total transparency in relation to the drainage of flood waters and are anchored sufficiently to resist a hurricane.
- **Planting of Trees** is permitted with the exception of trees characterised by the fragility of their roots (shallow roots), which risk being swept away and creating obstacles in the event of a proven risk. The planting of local endemic species is favoured, (as per the decree of 20 October 2020 preventing the introduction and spread of invasive, non-native plant species on Saint-Martin territories); to follow up, invasive non-native species are prohibited (as per the decree of 30 November 2020 regarding the prevention of the introduction and the spread of non-native plant species on Saint-Martin territories - ban on all activities involving live specimens.)

2.2. Prohibitions in the dark red zone

In general, **works that lead to increased vulnerability, i.e an increase in the number of properties or people exposed to risks,** are prohibited.

More specifically, all works and developments, constructions and structures, installations and activities of any kind are prohibited, except those expressly authorised in the “authorisation” paragraph (*see 2.1*).

2.3. Requirements concerning the building rules in the dark red zone

2.3.1. Existing constructions

Any **development, reconstruction and/or repair on existing buildings** must be carried out in line with the following requirements:

- the **woodwork, doors, windows** as well as all leaves located below the reference elevation must be made of materials that are insensitive to water, or using water-repellent and anti-corrosive products;
- **floor and wall coverings, thermal and/or sound protection** located below the reference elevation must be made of waterproof materials or using water-repellent and anti-corrosive products;
- the **technical networks** (water, electricity) located on the ground floor (except for the watertight supply of a submersible pump) must be equipped with automatic shut-off devices or re-installed above the reference elevation. A manual device is also permitted in the case of permanent occupation of the premises; it must be switched off in the event of rising water;
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation; the applicant must take all measures to avoid the introduction or release of substances inherent to the storage (*see Chapter IV-1.2*);
- **electrical, electronic, micro-mechanical equipment and household appliances** must be placed above the reference elevation (or installed in watertight and resistant premises).

2.3.2. New constructions

Authorised future constructions and structures must be carried out in accordance with the following requirements:

- **run-off and roof water** must be collected and evacuated through watertight networks to an appropriate outlet protected against regressive erosion; it is important to remember that the evacuation of rainwater into the public sewage system is forbidden;
- for all **collective** projects, a system for the **collection of run-off water** (gutters, ditches, etc.) must be installed at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system must be installed
- for private **individuals**, a system for the **collection of run-off water** (gutters, ditches, etc.) is **recommended** at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system can be installed;
- **electrical, electronic and micro-mechanical equipment and household appliances** must be placed above the reference elevation or equipped with watertight devices (or installed in watertight premises resistant to coastal flooding drainage);
- **materials that are insensitive to water or treated with water-repellent or anti-corrosive products** must be used for any part of the construction located below the reference elevation;
- all constructions and installations must have ground foundations that are solid enough to resist **localised washout, settlement or erosion;**
- builders must take all necessary measures to ensure that buildings and structures withstand the **forces exerted by drainage;**
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant shall take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2*)
- the **floors and structures and any casings** must be sized to withstand hydrostatic pressure;
- any **sensitive fixed installations** such as electrical and electronic equipment, motors, compressors, elevator machinery, heat or energy production equipment must be located above the reference elevation (or installed in watertight and resistant premises);
- for **construction work** authorised in the zone, such as **road infrastructures, hydraulic and supporting works or constructions/installations of public utility,** preliminary geotechnical and structural studies are mandatory. Performed by an expert or a specialised design office, they are intended to determine the risks and stability of the proposed structures. Foundation depths, the design of the supports and the control of water shall be specified in particular by these studies.

3. Provisions applicable in the RED ZONE

The **red zone** is a zone where the risk is high and where the danger is significant depending on the areas concerned. It is a zone exposed to the coastal flooding hazard, the mechanical wave impact hazard or a combination of these two hazards; in addition to the hazard, there are many critical factors in terms of properties, activities and people. The objective of this zone is not to aggravate the risks, not to increase the exposed population and properties, while allowing certain activities and constructions to be maintained under certain conditions.

General principles of regulation within the zone:

- Reconstruction in **a red zone**: any building destroyed by hurricane Irma or by the last known hurricane hazard may be rebuilt. In all other cases, the new construction rule applies. Any reconstructions must include measures to reduce vulnerability and comply with the existing planning regulations. The significant reduction in vulnerability must be justified by means of a certificate, drawn up by the project architect or by an expert, attesting to the completion of preliminary geotechnical and structural studies, and stating that the project has factored in these conditions at the design stage, in accordance with Article 46 - 21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin.
- New construction in a **red zone**:
  - ✔ New constructions, developed within the framework of urban regeneration, or overall development, integrating the objective of reducing global vulnerability, are permitted in accordance with the general and zone-specific requirements.
  - ✔ New constructions in vacant spaces (non-constructed plots surrounded by built plots) are permitted with the exception of new constructions used as sleeping quarters. These constructions must respect the general and specific requirements applicable to the zone.

3.1. Authorisations in the red zone

The following list describes **all the constructions permitted in the red zone, on condition that:**

- ✔ **they do not aggravate the risks and their effects,**
- ✔ **they do not trigger new risks,**
- ✔ **and that there is no increase in the vulnerability of existing properties and activities, limiting the maximum number of people affected.**

Among the **Constructions, structures, works and** developments:

- the **reconstruction of buildings destroyed** by hurricane Irma or by the last known hurricane hazard is permitted, according to the following conditions:
  - ✔ it is not a sensitive facility (public access building of type R, J or U)
  - ✔ there is no increase in footprint and it is sited on the same land unit while prioritising distance from the sea front
  - ✔ there is no change of use other than a change that reduces vulnerability (*see glossary*)

- ✔ the provision of a certificate drawn up by the project architect or by an expert, as required in accordance with Article 46 - 21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies, and the compliance of the project with the requirements related to it at the design stage; and this without prejudice to the rights of third parties;
- ✔ that the sleeping quarters are located at least above the reference elevation
- ✔ that the requirements relating to the building regulations, whether general or specific to the zone, are respected
- ✔ demolitions – reconstruction of properties damaged or destroyed by hurricane Irma or by the last known hurricane hazard are also permitted, in compliance with the building regulations, whether general or specific to the zone

- **New constructions,** carried out within the framework of an **urban renewal scheme or global development, integrating overall vulnerability reduction objectives**, are permitted, in compliance with general and specific requirements applicable to the zone.
- **New constructions without sleeping quarters in the vacant spaces** are permitted, provided that they integrate measures to reduce vulnerability and are in compliance with the general and specific requirements applicable to the zone.
- The **repair, maintenance and routine management of constructions and installations** are permitted (interior alterations, façade treatments and renovations, changes to the external appearance, roof repairs). The authorised works must be carried out respecting the existing footprint.
- Works strictly necessary for the **safety of public access buildings** and those intended to improve accessibility for people with reduced mobility are permitted, if there is no possibility of relocation.
- **Works, structures and developments** intended to reduce the consequences of the various risks identified (works to combat erosion, works to combat coastal flooding, retaining walls, etc.) in order to protect areas already built or developed areas are permitted. These works, structures and developments may be carried out:
  - ✔ for private **individuals**: as part of an overall development project, subject to a preliminary technical study on the coastal dynamics on the level of the bay affected and to the provision of a certificate drawn up by the project architect or by an expert, as required in accordance with Article 46-21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies as well as compliance of the project at the design stage with the requirements related to it; and this without prejudice to the rights of third parties;
  - ✔ for **utilities**: Subject to a preliminary technical study of the coastal dynamics, on the scale of the affected bay, and attested by a certificate drawn up by the project architect or by an expert, as required in accordance with Article 46 - 21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies, and the compliance of the project at the design stage with the requirements related to it; and this without prejudice to the rights of third parties;
- **Facilities and buildings necessary for the operation of public port infrastructures** are permitted in line with the requirements relating to the building regulations, whether general or specific to the zone.
- Authorisation is granted for **portable first aid stations and equipment requiring proximity to the sea** for nautical activities and fishing, on condition of ensuring full transparency.

- **Slipways** built with removable devices that can be dismantled in the event of heavy swells and hurricane episodes are permitted.
- **Changes of use in order to reduce** vulnerability as defined in the glossary are permitted, in particular constructions dedicated to housing and hotel accommodation to turn them into constructions dedicated to other activities without sleeping quarters.
- **Individual parking lots** linked to an existing dwelling at the level of the natural ground are permitted, provided that they do not waterproof the natural ground and provided that they do not hinder drainage.
- **Collective parking lots** at the level of the natural ground are permitted, as long as they do not waterproof the natural ground and provided that they do not hinder drainage and that the public is clearly informed of the risks of coastal flooding. Water coming from parking bays must be treated (sludge trap, oil separator) before being discharged into the rainwater network.
- **Fences** are permitted, provided that they are openwork over their entire height, i.e. that they do not hinder the flood water and that they allow for full transparency (non-open work fences are therefore formally prohibited).
- **Extension by raising the construction height** is permitted only for the purpose of making **existing buildings safe to be used as sleeping quarters**, subject to the re-qualification of the ground floor with a view to reducing the vulnerability of people (creation of a shelter), without increasing the accommodation capacity, subject to the durability of the building with regard to the mechanical wave impact and washouts; this extension must not exceed 25% of the floor area and is limited to 50 m². Limited expansions to this cap may be decided by way of deliberation among the executive council, motivated by technical imperatives or by the necessity of welcoming inhabitants of an apartment building, on condition that the expansion is not aimed at creating additional accommodation.
- **Extension by raising the construction height** is permitted only for the purpose of making **existing buildings safe for commercial and industrial purposes** (creation of a storage area above water level), without change of use and subject to the durability of the building with regard to the mechanical wave impact and washouts; this extension must not exceed 25% of the floor area and is limited to 50 m². Limited expansions to this cap may be decided by way of deliberation among the executive council, motivated by technical imperatives, or by the necessity of welcoming inhabitants of an apartment building, or storage away from water, on condition that the expansion is not aimed at creating additional accommodation.
- The construction, extension, or renovation of **light catering services for take-away** is permitted.
- **Works on private facilities and utility networks** are permitted (water, sanitation, electricity, telecommunications, etc.), on condition that measures are implemented appropriate to the risks, including those generated by the works and in compliance with the general or specific requirements for the zone.
- **In-ground swimming pools and above ground and removable pools** are permitted, provided they comply with safety measures to prevent drowning and eddies (water pocket swirls, a phenomenon in the event of submersion, in particular). For example: safety signage, non-removable posts and other measures. Swimming pool enclosures that cannot be disassembled are permitted provided that the total transparency of the drainage of flood water is ensured and their anchorage can resist the force of a hurricane (see Chapter IV-1.3).
- **Planting of Trees** is permitted with the exception of trees characterised by the fragility of their roots (shallow roots), which risk being swept away and creating obstacles and in the event of a proven risk. The planting of local endemic species is favoured, (as per the decree of 20 October 2020 preventing the introduction and spread of invasive, non-native plant species on Saint-Martin

territories); to follow up, invasive non-native species are prohibited (as per the decree of 30 November 2020 regarding the prevention of the introduction and the spread of non-native plant species on Saint-Martin territories - ban on all activities involving live specimens.)

Among the **Public facilities and infrastructure:**

- **Infrastructure works, technical networks** (water, sewerage, electricity, telecommunication, etc.) and installations necessary for the functioning of public services or services intended for the public, notably road or pedestrian service works, the installation of urban furniture provided that it is anchored in the ground, works for the creation of public transport in exclusive right of way, are permitted provided that the project owner takes appropriate measures in relation to the risks and warns the public by means of clear signalling.
- The creation or extension of a **wastewater treatment plant** is permitted, on condition that a certificate from the project architect or by an expert is provided, as required in accordance with of Article 46-21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of a preliminary technical study and the compliance of the project at its design stage, with its requirements targeting, in particular, protection against mechanical wave impact and washouts, and the protection of the wastewater treatment plant's sensitive equipment by installing them above the benchmark elevation.
- **Pumping stations** linked to a wastewater treatment plant are permitted.
- **Technical premises** necessary for the functioning of public services or services intended for the public are permitted.
- Ferry **terminals,** bus terminals, inter-modal stations, aerodromes, airports, ports and marinas are permitted.
- **Public toilets are permitted.**
- The development **of collective leisure areas** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage. Information boards and signs alerting the public to the risks shall be displayed.
- The development of **bathing pools that do not require earthworks and that can be disassembled** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage and that they are staked out by fixed posts located or visible above the reference elevation. Information boards and signs alerting the public to the risks shall be displayed. Pool enclosures that cannot be disassembled are permitted on condition that they ensure total transparency in relation to the drainage of flood waters and are anchored sufficiently to resist a hurricane.
- **Picnic huts** are permitted.

3.2. Prohibitions in the red zone

In general, **works that lead to increased vulnerability, i.e an increase in the number of properties or people exposed to risks** are prohibited.

More specifically, all works and developments, constructions and structures, installations and activities of any kind are prohibited, except those expressly authorised in the "authorisation" paragraph (*see 3.1).*

Including:

- The creation or extension of sensitive establishments (public access buildings of type J, R or U) **is prohibited**.

- The change of use of existing constructions likely to increase vulnerability **is prohibited**, in particular constructions dedicated to commercial activities without sleeping quarters (restaurants, shops) to turn them into constructions dedicated to housing or hotel accommodation.
- The creation or development of a basement **is prohibited**.
- The creation or development of underground parking lots **is prohibited.**
- The creation of embankments and retaining walls, other than those authorised within the framework of works and developments specifically studied and intended to mitigate the consequences of the risks, **is prohibited**.
- Solid fencing (low walls, walls, etc.) **is prohibited**.
- The storage of floating materials or products (tyres, wood and furniture, vehicles and salvaged products, flammable products, etc.) outside closed storage areas **is prohibited**.
- The creation of light leisure dwellings *(see glossary)* **is prohibited.**

3.3. Building regulations in the red zone

3.3.1. Existing constructions

Any **development, reconstruction and/or repair of existing constructions** must be carried out in line with the following requirements:

- **woodwork, doors, windows** as well as all leaves located below the reference elevation must be made of materials that are insensitive to water, or using water-repellent and anti-corrosive products;
- **floor and wall coverings, thermal and sonic protections** located below the benchmark elevation must be made of waterproof materials or using water-repellent and anti-corrosive products; **technical networks** (water, electricity) located on the ground floor (except for the watertight supply of a submersible pump) must be equipped with automatic shut-off devices or re-established above the reference elevation. A manual device is also allowed in case of permanent occupation of the premises. The shut-off device must be effective in case of rising water;
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant must take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2*);
- **Electric, electronic, micro-mechanical, and household appliances** should be placed above the benchmark point of reference (or placed in an airtight, water-resistant premises).

3.3.2. New constructions

Authorised future constructions and structures must be carried out in accordance with the following requirements:

- **run-off and roof water** must be collected and evacuated through watertight networks to an appropriate outlet protected against regressive erosion. As a reminder, the evacuation of rainwater into the public sewerage system is prohibited;
- for all **collective** projects, a system for the **collection of run-off water** (gutters, ditches, etc.) must be installed at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system must be installed;

- for private **individuals**, a system for the **collection of run-off water** (gutters, ditches, etc.) is **recommended** at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system can be installed;
- **electrical, electronic, micro-mechanical equipment and household appliances** must be placed above the benchmark point of reference (or installed in watertight premises resistant to coastal flooding drainage);
- **materials that are insensitive to water or treated with water-repellent or anti-corrosive products** must be used for any part of the construction located below the reference elevation;
- all constructions and installations must have foundations that are solid enough to resist **localised washout, settlement or erosion;**
- builders must take all necessary measures to ensure that constructions and structures withstand the **forces exerted by drainage;**
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant shall take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2*)
- the **floors and structures and any casings,** must be sized to withstand hydrostatic pressure;
- any **sensitive fixed installations** such as electrical and electronic equipment, motors, compressors, elevator machinery, heat or energy production equipment must be located above the reference elevation (or installed in watertight and resistant premises);
- for **construction work** authorised in the zone, such as **road infrastructures, hydraulic and supporting works or public utility constructions/installations,** preliminary geotechnical and structural studies are mandatory. Performed by an expert or a specialised design office, they are intended to determine the risks and stability of the proposed structures. Foundation depths, the design of the supports and the control of water shall be specified in particular by these studies.

4. Provisions applicable in the DARK BLUE ZONE

The **dark blue zone** is a zone where the danger is significant for properties and people, because the hazard is high in highly urbanised sectors. It is a zone exposed to the coastal flooding hazard, to the mechanical wave impact hazard or a combination of these two hazards. The objective of this zone is to not aggravate the risks, nor to increase exposure to the population and services, all the while permitting conditionally strategic activities and constructions.

General principles of regulation within the zone:

- A reconstruction in the **dark blue zone**: any building destroyed by hurricane Irma or by the last known hurricane hazard may be rebuilt. In all other cases, the new construction rule applies. Any reconstructions must include measures to reduce vulnerability and comply with the existing planning regulations. The significant reduction in vulnerability must be justified by means of a certificate, drawn up by the project architect or by an expert, attesting to the completion of preliminary geotechnical and structural studies and stating that the project has factored in these conditions at the design stage, in accordance with Article 46 -21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin.
- New construction in the **dark blue zone**:
  - ✔ New constructions carried within the framework of an urban renovation or of a comprehensive development project incorporating an overall vulnerability reduction objective are permitted, within the general and specific parameters of the zone.
  - ✔ New constructions in vacant spaces (empty areas surrounded by built-up areas) are permitted provided that they integrate measures to reduce vulnerability and that the sleeping quarters are located above the reference elevation.

4.1. Authorisations in the dark blue zone

The following list describes **all the constructions permitted in the dark blue zone, on condition that:**

- ✔ **they do not aggravate the risks and their effects,**
- ✔ **they do not trigger new risks,**
- ✔ **and that there is no increase in vulnerability of existing services and limiting the maximum number of people exposed.**

Among the **Constructions, structures, works and** developments:

- the **reconstruction of buildings destroyed** by hurricane Irma or by the last known hurricane hazard is permitted, subject to the following conditions:
  - ✔ it is not a sensitive facility (public access building of type R, J or U)
  - ✔ there is no increase in footprint and it is sited on the same land unit while prioritising distance from the sea front
  - ✔ there is no change of use other than a change that reduces vulnerability (*see glossary*)

- ✔ the provision of a certificate drawn up by the project architect or by an expert, as required by Article 46 - 21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies, and the compliance of the project at the design stage with the requirements related to it; and this without prejudice to the rights of third parties;
- ✔ that the sleeping quarters are located at least above the reference elevation
- ✔ that the requirements relating to the building regulations, whether general or specific to the zone, are respected
- ✔ demolitions – reconstruction of properties damaged or destroyed by hurricane Irma or by the last known hurricane hazard are also permitted, in compliance with the building regulations, whether general or specific to the zone

- **New constructions**, carried out within the framework of an **urban renewal or of a comprehensive development project, incorporating overall vulnerability reduction**, are permitted, within the general and specific parameters of the zone.
- **New constructions in the vacant spaces** are permitted provided that they integrate measures to reduce vulnerability, that **sleeping quarters are located above the reference level and** in compliance with the general and specific requirements applicable to the zone.
- The **repair, maintenance and routine management of constructions and installations** are permitted (interior alterations, façade treatments and renovations, changes to the external appearance, roof repairs). The authorised works must be carried out respecting the existing footprint.
- Works strictly necessary for the **safety of public access buildings** and those intended to improve accessibility for people with reduced mobility are permitted, if there is no possibility of relocation.
- **Works, structures and developments** intended to reduce the consequences of the various risks identified (works to combat erosion, works to combat coastal flooding, retaining walls, etc.) in order to protect areas already built or developed areas are permitted. These works, structures and developments may be carried out:
  - ✔ for private **individuals**: as part of an overall development project, subject to a preliminary technical study on the coastal dynamics at the scale of the impacted bay, a certificate, drawn up by the project architect or by an expert, as required under Article 46 -21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, in order to attest to the completion of preliminary geotechnical and structural studies and stating that the project has factored in these conditions at the design stage, and without prejudice to the rights of third parties;
  - ✔ For **utilities**: subject to a preliminary technical study on the coastal dynamics at the scale of the impacted bay, a certificate, drawn up by the project architect or by an expert, as required under Article 46 -21 paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, in order to attest to the completion of geotechnical and structural studies and stating that the project has factored in these conditions at the design stage, and without prejudice to the rights of third parties.
- **Facilities and buildings necessary for the operation of public port infrastructures** are permitted in line with the requirements relating to the building regulations, whether general or specific to the zone.
- Authorisation is granted for **removable first aid stations and equipment requiring proximity to the sea** for nautical activities and fishing, on condition of ensuring hydraulic transparency.

- **Slipways** built with removable devices that can be disassembled in the event of heavy swells and hurricane episodes are permitted.
- **Changes of use in order to reduce** vulnerability as defined in the glossary are permitted, in particular constructions dedicated to housing and hotel accommodation to turn them into constructions dedicated to other activities without sleeping quarters.
- **Individual parking lots** linked to an existing dwelling at the level of the natural ground are permitted, provided that they do not waterproof the natural ground and provided that they do not hinder drainage.
- **Collective parking lots** at the level of the natural ground are permitted, as long as they do not waterproof the natural ground and provided that they do not hinder drainage and that the public is clearly informed of the risks of coastal flooding. Water coming from parking bays must be treated (sludge trap, oil separator) before being discharged into the rainwater network.
- **Fences** are permitted, provided that they are openwork over their entire height, i.e. that they do not hinder flooding and that they allow for hydraulic transparency (non-open-work fences are therefore strictly prohibited).
- **Extension by raising the construction height** is permitted only for the purpose of making **existing buildings safe to be used as sleeping quarters**, subject to the requalification of the ground floor with a view to reducing the vulnerability of people (creation of a shelter), without increasing the accommodation capacity, subject to the durability of the building with regard to the mechanical wave impact and washouts; this extension must not exceed 25% of the floor area and is limited to 50 m². Limited adaptations to this cap can be decided by way of deliberation among the executive council motivated by technical imperatives or by the necessity of welcoming inhabitants of an apartment building, on condition that the expansion is not aimed at creating additional accommodation.
- **Extension by raising the construction height** is permitted only for the purpose of making **existing buildings safe for commercial and industrial purposes** (creation of a storage area above water level), without change of use and subject to the durability of the building with regard to mechanical wave impact and washouts; this extension must not exceed 25% of the floor area and is limited to 50 m². Limited adaptations to this cap may be decided by way of deliberation among the executive council motivated by the technical requirements or by the need to accommodate users of the building or the storage of equipment out of water, provided that the extension is not aimed at creating housing.
- The construction, extension and rehabilitation of **light take-out catering facilities** is permitted. **Work on private facilities and technical networks** (water, sanitation, electricity, telecommunications, etc.) provided that appropriate measures are implemented for the risks, including those risks generated by the work, subject to the general and specific regulations for the zone.
- **In-ground swimming pools and above ground removable pools** are permitted, provided they comply with safety measures to prevent drowning and eddies (water pocket swirls, a phenomenon in the event of submersion, in particular). For example: signage, non-removable plots and other measures. Swimming pool enclosures that cannot be disassembled are permitted provided that the total transparency of the drainage of flood water is ensured and their anchorage can resist the force of a hurricane (see Chapter IV-1.3).
- **Planting Trees** is permitted with the exception of trees characterised by the fragility of their roots (shallow roots), which risk being swept away and creating log-jams and verified risk . The planting of local endemic species is favoured, (as per the decree of 20 October 2020 regarding the preventing the introduction and spread of invasive, non-native plant species on Saint-Martin

territories); to follow up, invasive non-native species are prohibited (as per the decree of 30 November 2020 regarding the prevention of the introduction and the spread of non-native plant species on Saint-Martin territories – ban on all activities involving live specimens.)

Among the **Public facilities and infrastructure:**

- **Infrastructure works, technical networks** (water, sewerage, electricity, telecommunication, etc.) and installations necessary for the functioning of public services or services intended for the public, notably road or pedestrian service works, the installation of urban furniture provided that it is anchored in the ground, works for the creation of public transport in exclusive right of way, are permitted provided that the project owner takes appropriate measures in relation to the risks and warns the public by means of clear signalling.
- The creation or extension of a **wastewater treatment plant** is permitted, on condition that a certificate from the project architect or by an expert is provided, as required in accordance with Article 46-21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin, attesting to the completion of a preliminary technical study and the compliance of the project at the design stage, with its requirements targeting, in particular, protection against mechanical wave impact and washouts, and the protection of the sensitive equipment of a waste-water treatment plant by installing this above the benchmark elevation.
- **Pumping stations** linked to a wastewater treatment plant are permitted.
- **Technical premises** necessary for the functioning of public services or services intended for the public are permitted.
- Ferry **terminals**, bus terminals, intermodal stations, aerodromes, airports, ports and marinas are permitted.
- **Public toilets are permitted.**
- The development of **collective leisure areas** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage. Information boards and signs alerting the public to the risks shall be displayed.
- The development of **bathing pools that do not require earthworks and that can be disassembled** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage and that they are staked out by fixed posts located or visible above the reference elevation. Information boards and signs alerting the public to the risks shall be displayed. Pool enclosures that cannot be disassembled are permitted on condition that they ensure total transparency in relation to the drainage of flood waters and are anchored sufficiently to resist a hurricane.
- **Picnic Shelters** are permitted.

4.2. Prohibitions in the dark blue zone

In general, **works that lead to increased vulnerability, i.e an increase in the number of properties or people exposed to risks,** are prohibited.

More specifically, all works and developments, constructions and structures, installations and activities of any kind are prohibited, except those expressly authorised in the “authorisation” paragraph (*see 4.1*).

Including:

- the creation or extension of sensitive establishments (public access buildings of type J, R or U) **is prohibited**
- the change of use of existing constructions likely to increase vulnerability **is prohibited**, in particular constructions dedicated to commercial activities without sleeping quarters (restaurants, shops) to turn them into constructions dedicated to housing or hotel accommodation
- the creation or development of a basement **is prohibited**.
- the creation or development of underground parking lots **is prohibited**
- the creation of embankments and retaining walls, other than those permitted within the framework of works and developments specifically designed to reduce the consequences of risks, **is prohibited**
- solid fencing (low walls, walls, etc.) **is prohibited**
- the storage of floating materials or products (tyres, wood and furniture, vehicles and salvaged products, flammable products, etc.) outside of closed storage areas **is prohibited**
- the creation of light leisure dwellings *(see glossary)* **is prohibited**

4.3. Requirements concerning the building rules in the dark blue zone

4.3.1. Existing constructions

Any **development, reconstruction and/or repair on existing constructions** must be carried out in line with the following requirements:

- **woodwork, doors, windows** as well as all leaves located below the reference elevation must be made of materials that are insensitive to water, or using water-repellent and anti-corrosive products;
- **Floor and wall coverings, thermal and / or sound protection** located below the reference point must be made of either of water-resistant materials, or with water-repellent and anti-corrosive materials;
- **technical networks** (water, electricity) located on the ground floor (except for the watertight supply of a submersible pump) must be equipped with automatic shut-off devices or re-established above the reference elevation. A manual device is also allowed if the premises are permanently occupied. The shut-off device must be effective in the event of rising water;
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant shall take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2*)
- **electrical, electronic, micro-mechanical equipment and household appliances** must be placed above the reference elevation (or installed in watertight and resistant premises).

4.3.2. New constructions

Authorised future constructions and structures must be carried out in accordance with the following requirements:

- **run-off and roof water** must be collected and evacuated through watertight networks to an appropriate outlet protected against regressive erosion. As a reminder, the evacuation of rainwater into the public sewerage system is prohibited;
- for all **collective** projects, a system for the **collection of run-off water** (gutters, ditches, etc.) must be installed at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system must be installed;
- for private **individuals**, a system for the **collection of run-off water** (gutters, ditches, etc.) is recommended at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system can be installed;
- **electrical, electronic and micro-mechanical equipment and household appliances** must be placed above the reference elevation or equipped with watertight devices (or installed in watertight premises resistant to coastal flooding drainage);
- **materials that are insensitive to water or treated with water-repellent or anti-corrosive products** must be used for any part of the construction located below the reference elevation;
- all constructions and installations must have foundations that are solid enough to resist **localised washout, settlement or erosion;**
- builders must take all necessary measures to ensure that constructions and structures withstand the **forces exerted by drainage;**
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant shall take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2*)
- the **floors and structures and any casings** must be sized to withstand hydrostatic pressure;
- any **sensitive fixed installation** such as electrical and electronic equipment, motors, compressors, elevator machinery, heat or energy production equipment must be located above the reference elevation (or installed in watertight and resistant premises);
- for the **building work** authorised in the zone, such as **road infrastructures, hydraulic and supporting works or constructions/installations of public utility,** preliminary geotechnical and structural studies are mandatory. Performed by an expert or a specialised design office, they are intended to determine the risks and stability of the proposed structures. Foundation depths, the design of the supports and the control of water shall be specified in particular by these studies.

5. Provisions applicable in the BLUE ZONE

The **blue zone** is the zone least exposed to the coastal flooding hazard. There is no mechanical wave impact. The objective of this zone is to allow constructions and developments subject to certain conditions, and to respect the building regulations.

General principles of regulation within the zone:

- Reconstruction in the **blue zone**: any building destroyed by hurricane Irma or by the last known hurricane hazard may be rebuilt. In all other cases, the new construction rule applies. Any reconstructions must include measures to reduce vulnerability and comply with the existing planning regulations. The significant reduction in vulnerability must be justified by means of a certificate, drawn up by the project architect or by an expert, attesting to the completion of preliminary geotechnical and structural studies and stating that the project has factored in these conditions at the design stage, in accordance with Article 46 -21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin.
- New construction in the **blue zone**:
  - ✔ New constructions and developments are permitted subject to sleeping quarters being situated above the reference benchmark and respecting general and specific guidelines within the zone.

5.1. Authorisations in the blue zone

The following list describes **all the constructions permitted in the blue zone, on condition that:**

- ✔ **they do not aggravate the risks and their effects,**
- ✔ **they do not trigger new risks,**
- ✔ **And that there is no increase in vulnerability of existing services and limiting the maximum number of people exposed.**

Among the **Constructions, structures, works and developments:**

- The **reconstruction of buildings or demolitions - reconstructions of damaged properties destroyed** by hurricane Irma or by the last known hurricane hazard, on condition that a certificate drawn up by the project architect or by an expert is provided, as required in accordance with Article 46--21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies and the compliance of the project at the design stage with its requirements regarding, in particular, protection against the mechanical wave impact and washouts, with the aim of reducing vulnerability (sleeping quarters located at least above the reference elevation), and in compliance with the requirements relating to the building regulations, whether general or specific to the zone.
- **Constructions and developments are** permitted provided that they are located above the reference elevation, and that they comply with the general and specific requirements applicable to the zone.
- **New constructions for all purposes and their extensions on the ground or to the first floor are permitted, provided that they are located above the reference elevation** and comply with the stipulations relating to construction regulations, whether general or specific to the zone.

- **The creation and extension of sensitive establishments (public access buildings of type R, J or U)** are permitted provided that they are located above the reference elevation and comply with the building regulations, whether general or specific to the zone.
- The **repair, maintenance and routine management of constructions and installations** are permitted (interior alterations, façade treatments and renovations, changes to the external appearance, roof repairs).
- **Works, structures and developments** intended to reduce the consequences of the various risks identified (works to combat erosion, works to combat coastal flooding, retaining walls, etc.) in order to protect areas already built or developed areas are permitted. These works, structures and developments may be carried out:
  - ✔ for private **individuals**: as part of an overall development project, subject to a preliminary technical study on the coastal dynamics at the scale of the impacted bay, and to the provision of a certificate drawn up by the project architect or by an expert, as required in accordance with Article 46-21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies, as well as compliance of the project with the requirements related to it at the design stage; and this without prejudice to the rights of third parties;
  - ✔ for **public services**: subject to a preliminary technical study on the coastal dynamics at the scale of the impacted bay and the provision of a certificate drawn up by the project architect or by an expert, as required in accordance with Article 46--21 paragraph 5 of the Urban Planning Code of the Overseas Collectivity of Saint-Martin, attesting to the completion of preliminary geotechnical and structural studies and the compliance of the project with the requirements related to it at the design stage; and this without prejudice to the rights of third parties;
- **Facilities and buildings necessary for the operation of (public and private) port infrastructures are permitted** in line with the requirements relating to the building regulations, whether general or specific to the zone.
- **Portable first aid stations and equipment,** requiring proximity to the sea for nautical activities and fishing, on condition that full transparency is ensured, are permitted.
- **Changes of use of existing buildings** are permitted, provided that the sleeping areas are above the reference level, and that they comply with the general and specific requirements for the zone.
- The development of **individual parking lots** is permitted, provided that it does not prevent the free drainage of water.
- **Collective parking lots** at the level of the natural ground are permitted, as long as they do not make the natural ground impermeable and provided that they do not hinder drainage and that the public is clearly informed of the risks of coastal flooding. Water coming from parking bays must be treated (sludge trap, oil separator) before being discharged into the rainwater network.
- **Work on private facilities and technical networks** is permitted (water, sanitation, electricity, telecommunications, etc.) on condition that measures are implemented appropriate to the risks, including those generated by the works and in compliance with the general or specific requirements for the zone.
- **Individual autonomous purification systems** are permitted (non-collective sanitation).
- **Fences** are permitted, provided that they are openwork over their entire height, i.e. that they do not hinder flooding and that they allow for hydraulic transparency (non-open-work fences are therefore strictly prohibited).
- The **storage of floating materials or products** (tyres, wood and furniture, vehicles and salvaged products, flammable products, etc.) is permitted outside of closed storage areas but above the reference elevation.

- The creation of **light leisure dwellings** above the reference elevation is permitted (*see glossary*).
- The construction, extension and rehabilitation of **light catering facilities** is permitted.
- **In-ground swimming pools and above ground pools are permitted** on condition that they comply with the safety measures to prevent drowning and eddies (water pocket swirls, a phenomenon in the event of submersion, in particular). For example: safety signage, non-removable posts and other measures. Swimming pool enclosures that cannot be disassembled are permitted provided that the total transparency of the drainage of the flood water is ensured and their anchorage can resist the force of a hurricane (see *Chapter IV-1.3*).
- **Planting of Trees** is permitted with the exception of trees characterised by the fragility of their roots (shallow roots), which risk being swept away and creating obstacles in the event of a proven risk. The planting of local endemic species is favoured, (as per the decree of 20 October 2020 preventing the introduction and spread of invasive, non-native plant species on Saint-Martin territories); to follow up, invasive non-native species are prohibited (as per the decree of 30 November 2020 regarding the prevention of the introduction and the spread of non-native plant species on Saint-Martin territories - ban on all activities involving live specimens.)

Among the **Public facilities and infrastructure:**

- **Infrastructure works, technical networks** (water, sewerage, electricity, telecommunication, etc.) and installations necessary for the functioning of public services or services intended for the public, notably road or pedestrian service works, the installation of urban furniture provided that it is anchored in the ground, works for the creation of public transport in exclusive right of way, are permitted provided that the project owner takes appropriate measures in relation to the risks and warns the public by means of clear signalling.
- The creation or extension of a wastewater treatment plant is permitted, on condition that a certificate from the project architect or by an expert is provided, as required by Article 46-21, paragraph 5 of the Urban Planning Code of the overseas collectivity of Saint-Martin, attesting to the completion of a preliminary technical study, and the compliance of the project with its requirements at the design stage regarding, in particular, protection against mechanical wave impact and washouts, and the protection of the sensitive equipment of a wastewater treatment plant by installing this above the benchmark elevation.
- **Pumping stations** linked to a wastewater treatment plant are permitted.
- **Technical premises** necessary for the functioning of public services or services intended for the public are permitted.
- Ferry **terminals,** bus terminals, inter-modal terminal, aerodromes, airports, ports and marinas are permitted.
- **Public toilets are permitted.**
- The installation of units for the **production of renewable energy** is permitted subject to compliance, taking account of the stipulations of the impact study required by the Environmental Code, the objective of which is to minimise the project's impact on marine submersion and coastal erosion, without prejudice to the rights of third parties
- The development of **collective leisure areas** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage. Information boards and signs alerting the public to the risks shall be displayed.
- The development of **bathing pools that do not require earthworks and that can be disassembled** is permitted provided that all technical provisions relating to the nature of the risks are factored in from the design stage and that they are staked out by fixed posts located or visible above the reference elevation.

- **Picnic shelters** are permitted.

5.2. Prohibitions in the blue zone

Generally speaking, **all works, constructions and developments restricting the free drainage of water and the coastal flooding or flooding fields are prohibited.**

More specifically, all works and developments, constructions and structures, installations and activities of any kind are prohibited, except those expressly authorised in the "authorisation" paragraph (see 5.1).

Including:

- the creation or development of a basement **is prohibited**.
- the creation or development of underground parking lots **is prohibited**
- the creation, extension or reconstruction of sleeping quarters located below the reference elevation **is prohibited**
- solid fencing (low walls, walls, etc.) **is prohibited**
- the storage of floating materials or products (tyres, wood and furniture, vehicles and salvaged products, flammable products, etc.) outside closed storage areas **is prohibited**
- The storage of containers **is prohibited** (these structures must remain temporary and follow the regulations of Saint-Martin Urban Planning Code).

5.3. Requirements relating to building rules in the blue zone

5.3.1. Existing constructions

Any **development, reconstruction and/or repair on existing constructions** must be carried out in line with the following requirements:

- **woodwork, doors, windows** as well as all leaves located below the reference elevation must be made using materials that are insensitive to water, or using water-repellent and anti-corrosive products;
- **Floor and wall coverings, thermal and / or sound protection** located below the reference point must be made of either water-resistant materials, or with water-repellent and anti-corrosive materials;
- the **technical networks** (water, electricity) located on the ground floor (except for the watertight supply of a submersible pump) must be equipped with automatic shut-off devices or re-installed above the reference elevation. A manual device is also allowed if the premises are permanently occupied. The shut-off device must be effective in the event of rising water;
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant must take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2)*
- **electrical, electronic, micro-mechanical equipment and household appliances** must be placed above the reference elevation (or installed in watertight and resistant premises).

5.3.2. New constructions

Authorised future constructions and structures must be carried out in accordance with the following requirements:

- **run-off and roof water** must be collected and evacuated through watertight networks to an appropriate outlet protected against regressive erosion. As a reminder, the evacuation of rainwater into the public sewerage system is prohibited;
- for all **collective** projects, a system for the **collection of run-off water** (gutters, ditches, etc.) must be installed at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system must be installed;
- for private **individuals**, a system for the **collection of run-off water** (gutters, ditches, etc.) is recommended at the top of the slope to prevent water from percolating directly into the slope; if necessary, a retaining structure and associated drainage system can be installed;
- **electrical, electronic and micro-mechanical equipment and household appliances** must be placed above the reference elevation or equipped with watertight devices (or installed in watertight premises resistant to coastal flooding drainage);
- **materials that are insensitive to water or treated with water-repellent or anti-corrosive products** must be used for any part of the construction located below the reference elevation;
- all constructions and installations must have foundations that are solid enough to resist **localised washout, settlement or erosion;**
- builders must take all necessary measures to ensure that constructions and structures withstand the **forces exerted by drainage;**
- **tanks, vats and pits** must be buried and ballasted, or raised above the reference elevation. The applicant must take all steps to prevent the introduction or removal of substances inherent to the storage (*see Chapter IV-1.2*)
- the **floors and structures and any casings** must be sized to withstand hydrostatic pressure;
- any **sensitive fixed installations** such as electrical and electronic equipment, motors, compressors, elevator machinery, heat or energy production equipment must be located above the reference elevation (or installed in watertight and resistant premises);
- for the **building work** authorised in the zone, such as **road infrastructures, hydraulic and supporting works or** constructions/installations of public utility, preliminary geotechnical and structural studies are mandatory. Performed by an expert or a specialised design office, they are intended to determine the risks and stability of the proposed structures. Foundation depths, the design of the supports and the control of water shall be specified in particular by these studies.

6. Provisions applicable to ALL ZONES

This chapter specifies the conditions for the implementation of all authorised projects (future and existing) in all zones. These conditions of implementation require compliance with the planning and building regulations.

6.1. Vulnerability assessments and risk studies

In accordance with paragraph 3° of II and III of Article L.562-2 of the Environment Code, the following assessments and studies are made mandatory.

Vulnerability assessment for all

In the areas most exposed to the marine submersion hazard, carrying out vulnerability diagnostics is made compulsory for any building development project from the approval of the risk protection plan, on all owners and/or public or private managers located in areas exposed to the hazard of marine submersion.

This assessment shall cover the building's electrical distribution and supply system, the possibility of creating a shelter and its location, the resistance of the building (stability of the foundations, resistance of the directly exposed façades, etc.) in relation to a coastal flooding for the reference hazard of the risk prevention plan, the resistance of the woodwork to the impacts of pebbles and/or other projectiles, and the possibilities of installing the equipment necessary for the proper functioning of the construction above water level.

The objectives of these measures are, on the one hand, to reduce material damage in the event of coastal flooding (resistance) and, on the other hand, to reduce the time needed to return to normal (resilience). The assessment should therefore provide the manager with:

1) Evidence of the probability of a flooding hazard
2) A description of the potential impact on assets and operations
3) Measures to be taken to reduce vulnerability

The significant reduction of vulnerability must be justified by means of a certificate drawn up by the project architect or by an expert (*see glossary*) attesting to the completion of preliminary geotechnical and structural studies. This certificate shall be attached to any building permit application.

Risk studies for facilities hosting vulnerable people

This risk study concerns structures hosting or accommodating, on a permanent or temporary basis:

- people who are difficult to move,
- people requiring specific means of evacuation in the event of coastal flooding.

For all areas exposed to the marine submersion hazard, **within 5 years** from the date of approval of the RPP, the manager must carry out a specific risk study in order to study and define the technical adaptations and possible measures to reduce the vulnerability of people and damage to buildings and properties.

This study must address the measures to safeguard people and property. It is therefore necessary to define the internal organisation of the establishment in relation to the risk of flooding and in particular to define the roles of each of the staff members, to study the possibilities of sheltering (adapted shelter level above the reference elevation) the occupants of the sensitive establishments or their evacuation in optimal safety conditions (route out of the water, access for emergency services, etc.).

This study must also be supplemented by a vulnerability diagnosis leading, if necessary, to the implementation of measures to reduce the vulnerability of the building.

6.2. Requirements relating to urban planning rules

Control of compliance with the rules set out in this Article shall be the responsibility of the authority responsible for issuing planning permission.

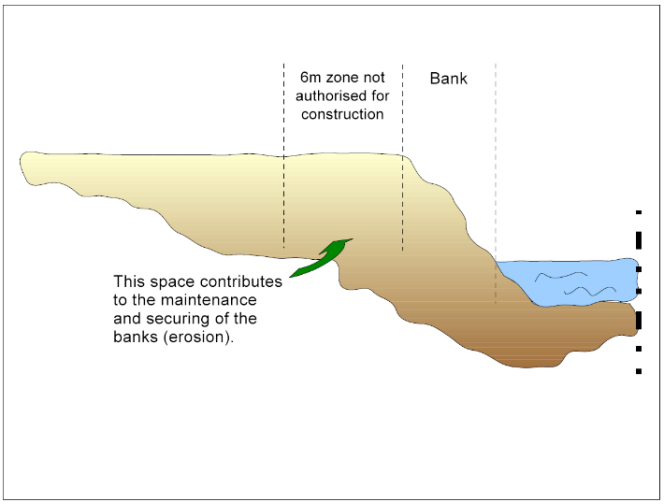
The corresponding applications must therefore include all the elements required to verify the rules defined below.

Access to the banks

The location of the constructions (buildings, fences, etc.) must allow access to the banks of the gullies and ponds for their maintenance.

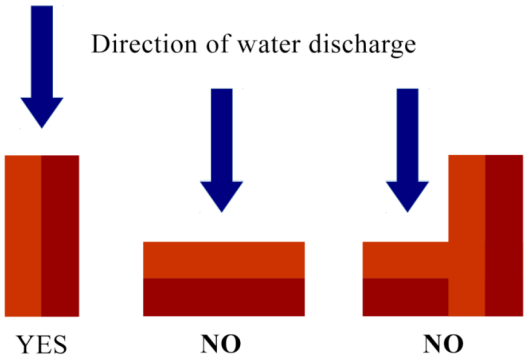
The provision concerns the flow axes identified on the 1:25,000 IGN map, i.e., preserving a construction-free 6m strip on either side of the watercourses from the top of the bank slope in order to maintain the drainage capacities, maintain the banks and limit the risks linked to erosion or bank stability.

This provision also applies in the unmarked zone ("white" zone) included in the Risk Prevention Plan study perimeter.

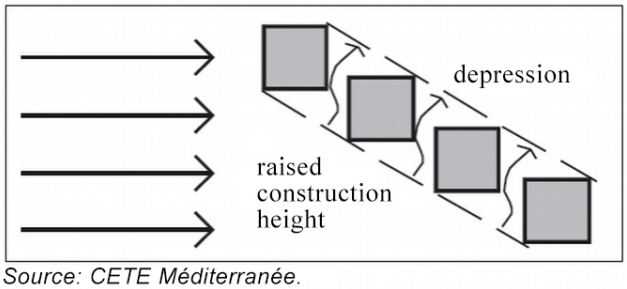


Constructions

In order to limit the obstacle effect, the longest length of the building must be placed in the axis of the water flow. Large gaps in the construction's footprint should be avoided (see diagram below).



The choice of location of a group of constructions must factor in the need to maintain hydraulic transparency by providing free spaces for drainage. It should be taken into account that the flood level is raised between the buildings and that the speed of the current is increased in the bottlenecks.



Source: CETE Méditerranée.

Any construction must be subject to a vulnerability assessment justifying the measures taken to limit the impacts and avoid any aggravation of the risk.

6.3. Requirements relating to building regulations

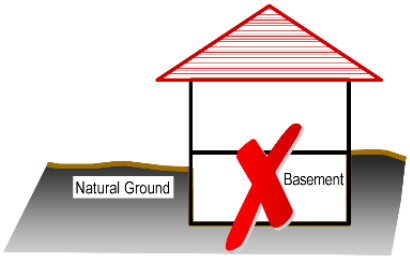
Prevention of the effects of hurricanes on constructions

It should be remembered that all projects must be designed in compliance with the hurricane regulations in force at the time of submission of the building permit and in compliance with the specific provisions set out in the regulations of this risk prevention plan.

- The implementation of preventive measures specific to this risk and applicable to constructions results to date from the application of the provisions of the amended NV 65 rules of Eurocode 1 (*National Annex NF EN 1991-1-4 / NA)* defining the effects of wind on constructions and annexes, classifying Saint-Martin in region V as an exposed site.

- Creating openings on the roof (for evacuation purposes for example) in a hurricane context is not recommended.

- Cellars and underground or semi-buried basements are prohibited.



- The connection between the metering box and the electrical distribution panel must be watertight.

- The parts of the structure located below the reference elevation (foundations, crawl space, walls, wall coverings, thermal and sound protection, etc.) must be designed to resist hydrostatic pressure, erosion and the effects of washouts and be made using waterproof, water-repellent and anti-corrosive materials

- Infrastructures, access roads, parking lots and parking bays of any kind must, unless technically impossible, be levelled off at the natural ground level except for those necessary for the evacuation of people and a possible access ramp to a raised building.
  Otherwise, their flood risk transparency must be ensured so as not to hinder the free drainage of water and aggravate the risks.

- In the event of a construction being raised for the creation of a shelter, it must take the following measures into account:
  - ✔ be located above the reference elevation
  - ✔ be dimensioned so as not to exceed 25% of the floor area of the of the building and be no higher than 50 m²,
  - ✔ be accessible via a staircase,
  - ✔ be equipped with a water connection,
  - ✔ be equipped with a self-sufficient and secure electrical network.

  The floor must support the additional load caused by the occupants of the house and a rescuer.

- When a lift is to be installed, the drive unit (motor, winch) and the electrical control cabinet must be above water level. These elements must therefore be placed in the upper part of or on the cab. This measure can be combined with the installation of a device to prevent the lift from descending into the flooded area (*see Recommendations*). In addition, a pumping system must be considered in order to evacuate the water at the bottom of the pit to the outside.

Wastewater, storm water or drainage requirements

The water recovered by the drainage, any rainwater collected, as well as the wastewater will be evacuated into the existing networks or to a natural output capable of receiving an additional flow without aggravating the risks or causing new ones (increased erosion in natural outlets, network saturation, flooding by marine submersion, landslide or collapse).

The collection, treatment and discharge works must be maintained and monitored by their owners on a regular basis, particularly after each heavy rainfall.

The private sewage system must be equipped with non-return valves. Similarly, non-return valves (or equivalent) must be installed in the sewage and rainwater networks.

The sanitation buffers must be sealed during hurricanes and floods.

Requirements in relation to exterior developments

- Supporting structures, anti-erosion devices or any other measure ensuring stability must be envisaged for any embankment more than 2 m in height. Any supporting works that may prove necessary must be calculated in accordance with good engineering practice.
- When creating embankments with a gradient greater than 33°, the project owner must adopt measures to protect people and property:
  - ✔ active measures such as equipping embankments with fences, bolts, etc.
  - ✔ passive measures such as reinforced walls and fences

In all cases, the earthworks or embankments shall be created with supports that are sized and adapted to the geotechnical and geological context and shall be drained.

- The fences shall be open-work and therefore built without a low wall. They must be permeable so as not to impede the drainage of water in the event of flooding. Solid fences of any kind are prohibited in all zones. Similarly, the installation of solid gates is prohibited in all zones.
- When external emergency stairs are built, they must not have a closed volume below the reference level and must allow water to drain as much as possible.
- When building private pools or authorised pools, it is imperative to produce appropriate signage beyond the benchmark references. Safety devices (shutters or enclosures) must not block the drainage of the flood water and must be properly anchored so that they cannot be swept away. Any electrical control systems must be waterproof or above water level.

Public access buildings, outdoor spaces and collective housing

Public access buildings, open-air spaces as well as collective housing authorised in flood-prone and/or submersible zones must have an evacuation plan for people and mobile goods as well as instructions relating to the applicable procedure.

An assembly point to accommodate all those likely to be present must also be identified. This place can correspond to a secure room (shelter area) located on a floor of the same building.

Information must also be provided to users, in accordance with Article R. 125-14 of the Environment Code. These elements must be communicated to the authorities to be included in the Territorial Backup Plan.

Reference elevation

Calculation method

The reference system used to evaluate the surges is the Natural Ground (NG). This choice can be challenged, as there are other more accurate systems: it will be possible in the future (in the next revisions of the risk prevention plan) to use the Ordnance Datum of Guadeloupe (NGG), as this is the reference system used by the IGN maps and land surveyors of Guadeloupe and Saint-Martin. The use of the 0 NGG

allows for the definition of 'isocotes' (water elevations) in relation to which the regulations specify that a reference height must be added to obtain the reference elevation (first floor of the house).

However, the Environment, Development and Housing Agency (DEAL) of Guadeloupe has chosen, for this revision of the hurricane hazard, to keep to the NG system in order to facilitate understanding (by reducing the number of maps project developers are required to refer to) and the examination of building permits. Indeed, when using the NGG, it will be necessary to consider an additional map (in addition to the hazard map and the regulatory zoning plan) for each project. In addition, the reference coastal flooding data available to the DEAL were calculated on the basis of the low resolution Digital Elevation Model (DEM), so the production of an additional isocote map would require the points to be reinterpolated. It is preferable to await the results of ongoing studies on marine submersion to take into account the "2100" hazard and produce very precise maps (delivery of studies of this hazard scheduled for 2022 by the BRGM).

The reference system for calculating the reference level is therefore the natural ground. The level of the NG corresponds to the altitude of the highest point concerned by the project before any work, without any reworking or earthworks previously carried out to allow the roll-out of a construction project. In order to take into account changes in the NG, the calculation of an average NG is requested, extended beyond the plot, as a basis for the calculations (*see glossary "Natural Ground"*).

The water level is the high value of each hazard class for the coastal flooding reference. As a precautionary measure, the reference elevation (or floor level) is set at 20 cm above this maximum water level. This 20 cm corresponds to both the average thickness of a floor slab and the uncertainty related to the construction of the hydraulic model. The reference elevation is set above the NG perpendicular to the area covered by the construction.

Layout of the first habitable floor

The reference elevation corresponds to the level of the maximum water levels reached by the reference coastal flooding hazard. The reference elevation is therefore at different heights depending on the coastal flooding hazard class.

The first habitable level of the buildings must be located at least above the reference elevation set as follows:

The value of reference elevations according to the hazard

TYPE	Hurricane hazard class	Reference elevation (or floor height) and requirements
INSTALLATION OF THE FIRST HABITABLE FLOOR Lowest level of a construction	**Very high** Flood heights above 2m	**TN + 2.50 m (height of one floor)** Locate the first habitable floor above the reference elevation, i.e. a minimum height of 2.50 m above the undeveloped natural ground.
	High Flood heights between 1m and 2m	**NG + 2.20 m** Locate the first habitable floor at + 2.20 m above the undeveloped natural ground.
	Medium Flood heights between 0.5m and 1m	**NG + 1.20 m** Locate the first habitable floor at + 1.20 m above the undeveloped natural ground.
	Low Flood heights of less than 0.5m	**NG + 0.70 m** Locate the first habitable floor at + 0.70 m above the undeveloped natural ground.

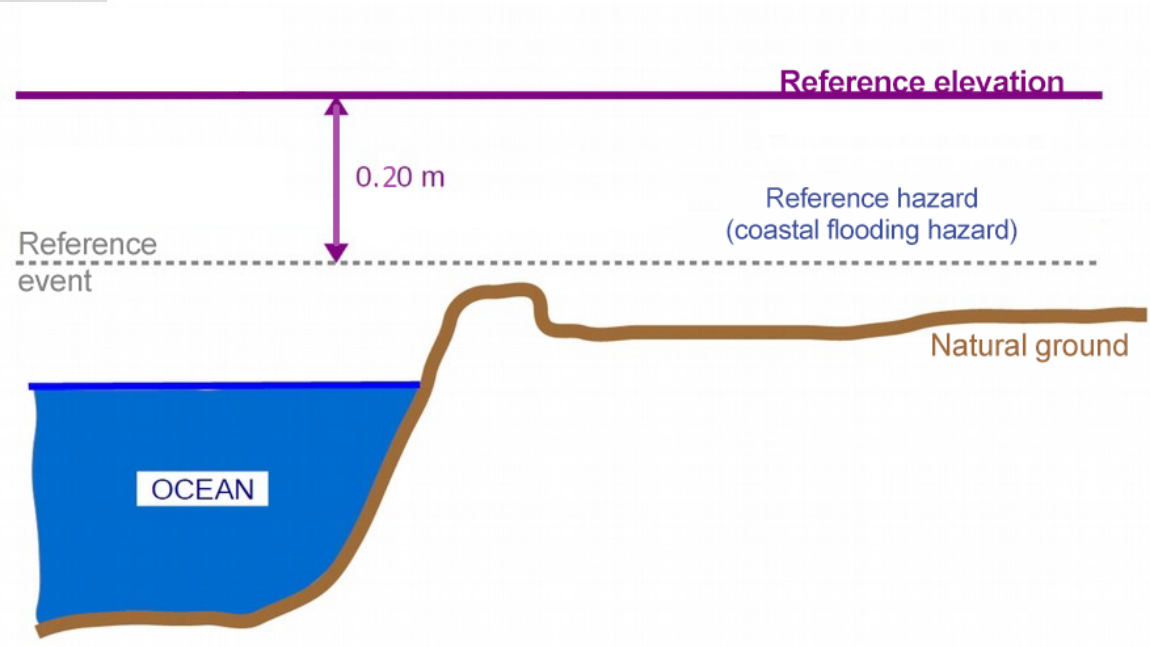


Diagram definition of the reference elevation

Chapter III

Preventive, protective and safeguard measures

1. Nature of the regulatory measures

1.1. Regulatory texts in force

The nature of the applicable regulatory measures is defined by Decree no. 95-1089 of 5 October 1995 relating to plans for the prevention of foreseeable natural risks, amended by Decree no. 2005-3 of 4 January 2005, more specifically its Articles 3, 4 and 5. These provisions have been codified in Articles R.562-3 3°, R.562-4 and R.562-5 of the Environment Code.

R.562-3 3° - – *The draft plan includes regulations specifying, as necessary:*

- *the prohibition measures and requirements applicable in each of these zones by virtue of paragraph 1 and 2 of Article L.562-1 of the Environment Code;*
- *the preventive, protective and safeguard measures mentioned in paragraph 3 of Article L.562-1 of the Environment Code and the measures relating to the development, use or operation of constructions, structures, cultivated or planted areas existing on the date of approval of the plan, mentioned in paragraph 4 of the same article. The regulations shall specify, where appropriate, which measures are mandatory and the timeframe for their implementation.*

R.562-4 – *In accordance with the third paragraph of Article L.562-1 of the Environment Code, the plan may in particular:*

- *define rules relating to the public networks and infrastructures serving its area of application and aimed at facilitating any evacuation measures or the response of emergency services;*
- *stipulate to private individuals or their groups the works to be carried out in order to help prevent the risks and entrust them with the management of risk prevention measures or response measures in the event of occurrence of the phenomena under consideration;*
- *make new constructions or developments subject to the creation of trade associations responsible for certain works necessary for risk prevention, in particular the maintenance of areas and, where appropriate, the creation or acquisition, management and maintenance of structures or equipment.*

The plan shall indicate whether these measures are mandatory and, if so, within what time frame.

R.562-5 – *In accordance with paragraph 4 of II of Article L. 562-1 of the Environment Code:*
I.- For constructions, structures or cultivated or planted areas existing on the date of approval, the plan may define preventive, protective and safeguard measures. However, the plan may not prohibit routine maintenance and management work on buildings erected prior to the approval of the plan or, where applicable, the publication of the decree mentioned in Article R. 562-6, in particular internal alterations, façade treatments and re-roofing, unless they aggravate the risks or create new ones, or lead to an increase in the exposed population.

II - The measures provided for under I may be made mandatory within a period of five years, which may be reduced in the event of an emergency.

III - In addition, the preventive work imposed on property built or developed in accordance with the provisions of the Urban Planning Code prior to the approval of the plan and for which the owners, operators or users are responsible may only concern limited alterations, the cost of which is less than 10 % of the market value or estimated value of the property on the date of approval of the plan.

1.2. Individual measures

These measures are, for the most part, constructive provisions applicable to future constructions, the implementation of which is the sole responsibility of the owners. Additional preliminary studies are therefore proposed or imposed in order to adapt the recommended measures to the site and the project. Some of these measures may be applicable to existing buildings or structures (reinforcement, drainage for example). These measures may be made mandatory within a maximum of 5 years from the date of approval of the risk prevention plan.

In the case of existing constructions, the recommended measures may only concern limited developments costing less than 10% of the market value of the property.

1.3. Collective measures

Collective measures may be stipulated or imposed. Where major works are essential or where individual measures are inadequate or too costly, collective protective measures may be recommended. Of a very varied nature (torrential correction, drainage, etc.), their implementation and maintenance may be the responsibility of the Overseas Collectivity of Saint-Martin or of groups of owners, users or operators. These measures may be made compulsory within 5 years of the approval of the risk prevention plan (this period can be reduced in case of emergency).

Moreover, as regards flooding, the principles laid down by the statement of 24 April 1996 relating to the provisions applicable to existing buildings and structures in areas subject to coastal flooding must be respected concerning:

- coastal flooding expansion zones to be preserved
- the zones exposed to the highest hazards, where the urbanisation of these areas must be prohibited or strictly controlled.

The preservation of the expansion area of coastal flooding can thus lead to the classification of sectors exposed to low hazards of coastal flooding as red zones (prohibition zone). Protective measures (e.g. dykes, embankments) can only be implemented to protect heavily built-up areas. In this case, their implementation is subject to the application of the regulations in force and in particular the provisions of Article R.214-1 of the Environment Code, specifying the nomenclature of the operations subject to declaration or authorisation under the Environment Code. These structures must be designed within the framework of a global protection policy on the scale of the catchment area and their influence on the drainage must be studied both in the flow and in the ebb.

2. Applicable measures

In accordance with Article L. 562-1 of the Environment Code, the purpose of the risk prevention plan is to define preventive, protective and safeguard measures that must be taken in zones that are exposed and not directly exposed to risks by the public authorities in line with their powers, as well as those that may be incumbent on private individuals.

These are essentially comprehensive measures that are not directly linked to a private project. Their aim is to act on the phenomena or on the vulnerability of people. Reducing the vulnerability of properties is more a matter of managing the existing built-up environment.

According to Article L. 562-1-III of the Environment Code, preventive, protective and safeguard measures may be made compulsory depending on the nature and intensity of the risk within a maximum period of 5 years, which may be reduced in case of emergency.

Preventive measures

They can be aimed at improving the knowledge of hazards, informing people or controlling phenomena: studies, local monitoring and warning systems, notification of the risk, river maintenance, regular control of the durability of the developments carried out on a watercourse (protection structures, recalibration, etc.).

Protective measures

Their aim is to limit the consequences of a phenomenon on existing critical situations. They result in works to reduce vulnerability and the creation of new protection systems (construction of dykes, retention basins, skimmer dams, etc.). These works are intended to protect critical zones. This type of structure can, in the event of failure of the protective elements, aggravate the situation. For this reason, their implementation cannot allow new urbanisation in the danger zones.

Safeguard measures

Their aim is to control or reduce the vulnerability of people: evacuation plans or identification of a shelter for public access buildings, conditions of use of infrastructures (width of road necessary for the response of the emergency services or access zones above the water level in the event of flooding).

2.1. Preventive measures

Apart from the general provisions of the risk prevention plan, it is recalled (Article L. 211-7 of the Environment Code) that local authorities are entitled to use Articles L. 151-36 to L. 151-40 of the Rural and Maritime Fishing Code to undertake the study, execution and operation of all general interest or urgent works, actions, structures or installations within the framework of the water development and management scheme if it exists.

They provide preventive information to people exposed to flooding, prepare them for the crisis and disseminate a risk culture. They contribute to the individual responsibility of citizens, who are the primary actors in civil security, and maintain a continuous dialogue with the territorial authorities.

Preventive measures	Measures to be taken by:	Time frame
Carry out information campaigns for private individuals and professionals on the natural hazards affecting the overseas collectivity of Saint-Martin as well as the rules to be respected in terms of construction and land use. (Article L. 125-2 of the Environment Code)	Overseas Collectivity of Saint-Martin	At least every two years
The territorial information document on major risks (DITRIM) includes the information transmitted by the prefect. It lays down the preventive, protective and safeguard measures in response to the major risks likely to affect the overseas collectivity of Saint-Martin. These measures shall include, where necessary, the safety instructions to be implemented in the event of the risk occurring. The President of the overseas collectivity of Saint-Martin informs the public of the existence of the territorial information document on major risks by means of a notice posted within the collectivity for at least two months. The territorial information document on major risks can be consulted free of charge at the premises of the collectivity (Decree no. 2004-554 of 9 June 2004).	Overseas Collectivity of Saint-Martin	Upon notification of the DTS (Strategic Territorial Document)
Tenants or purchasers of real estate located in areas covered by a risk prevention plan must be informed by the lessor or vendor of the existence of the risks covered by this plan (Article 77 of the law of 30 July 2003, Decree 2005-134 of 15 February 2005).	Seller or lessor according to a prefectoral decree forwarded to the President of the overseas collectivity of Saint-Martin and to the departmental chamber of notaries	Regular updating of the IAL (Information for buyers and tenants) Attach to any promise to sell or purchase, to any lease agreement
Set up coastal flooding markers and perform an inventory of existing ones (Decree no. 2005-233 of 14 March 2005).	Overseas Collectivity of Saint-Martin	Immediate
Carry out a hazard study for areas protected by dykes with a height of more than 1 m, in accordance with the Environment Code, Decree 2007-1735 and Prefectural Order No. 09-2835 of 3 November 2009. Carry out the necessary works to make the dykes safe, define permanent monitoring and maintenance instructions and the intervals between inspections, schedule systematic control inspections after each major event, and require a ten-year inspection.	Owner of the structure	Class B structures: mandatory hazard study before 01/04/2011and update at least every 10 years. Class C structures: Mandatory hazard study at the end of 2014 and regular maintenance and ten-year inspection

2.2. Protective measures

All protective works must respect the framework of the Water Law (Law no. 2006-1772 of 30 December 2006 on water and aquatic environments). It is necessary for the developments to be studied in a comprehensive manner, on the scale of a catchment area, taking into account their potential downstream consequences, in particular. A balance must be found between flood control measures and consideration of their effects on the natural environment. Among these protective works we can identify:

- recalibration of a watercourse;
- works to limit erosion;
- the creation of a flood control basin;
- the construction of protective structures such as dikes and barrier dams;
- the construction of diversion works.

Given the importance of these developments, this work must be carried out by local authorities or their groups.

These protective measures allow the hazard to be controlled by maintaining or rehabilitating existing protection systems or to be reduced by creating new systems.

The current worrying vulnerability of existing properties in flood-prone areas has prompted the legislator to take new measures into account when drawing up the risk prevention plan. The aim of these measures, known as "mitigation measures", is to:

- Ensure the safety of people (adaptation of properties or activities in order to reduce the vulnerability of people: shelters, consolidation work on protection structures)
- Reduce the vulnerability of properties (limit material damage and economic damage)
- Facilitate the return to normalcy (adapting properties to facilitate the return to normalcy when the event has occurred: choice of water-resistant materials, etc.; alleviate the psychological trauma linked to a flood by facilitating the wait for help or the flood to subside, as well as a possible evacuation in satisfactory conditions of comfort and safety)

The responsibilities of the different stakeholders can be summarised as follows:

Stakeholder	Responsibilities
Shoreline owners	Maintenance of banks (Art. L215-14 and Ministerial Reply no. 11794) No aggravation of the flood risk (Art. 640 of the Civil Code) Defence against floods (local authorities and their groups may be authorised to do this if it is in the general interest, Art. L.211-7 of the Environment Code)
Local authorities	General law of the President of the overseas collectivity of Saint-Martin (L.2212 of the General Code of Territorial Collectivities) Urban planning law Defence against floods if it is in the general interest, Art. L.211-7 of the Environment Code
Owner or syndicate of owners of structures	Maintenance of structures

Protective structures, even if they are designed for this purpose, are intended to **protect existing urbanised areas and not to make land located directly downstream subject to a strong to medium hazard suitable for construction**. Furthermore, it is recalled that **no undeveloped flood-prone area** may be opened up to development, whatever the hazard and even if it is protected by a structure.

The protective structures are therefore not intended to be opened up to development. To bring about a revision of the RPP which could make it possible to review certain possibilities in sectors where the hazard is strong or very strong, a comprehensive development procedure must be initiated in connection with the territory's project.

2.3. Safeguard measures

The aim of safeguard measures is to reduce the vulnerability of people. They reduce the consequences of disasters for the safety of people by determining, in line with the known risks, the immediate measures for safeguarding people and specify the organisation necessary to manage the crisis.

Safeguard measures	Measures to be taken by:	Implementation time frame
The creation of a Territorial Safeguard Plan (hereby referred as PTS) is mandatory for the overseas collectivity of Saint-Martin, which has a natural risk protection plan. This plan defines the warning measures and safety instructions. It identifies the means available and provides for measures to assist and support the population. The PTS must be compatible with the departmental emergency plans (Article 13 of the Law of 13 August 2004, Decree n° 2005 - 1156 of 13 September 2005 relating to the territorial safeguard plan). This plan specifies the preventive information, warning, evacuation and safety measures for people, adapted to the most exposed sectors	Overseas Collectivity of Saint-Martin	2 years from the date of approval of the RPP
The safety instructions appearing in the DITRIM are posted in the buildings referred to in Article 6 of Decree 90 - 918 of 11 October 1990 amended by Decree 2004 - 554 of 9 June 2004. This posting concerns: ✔ public access buildings hosting more than 50 people, ✔ industrial, commercial, agricultural or service buildings with an occupancy of more than 50 people, ✔ residential premises with more than 15 units.	Project owner	Within one year after the publication of the DITRIM

3. Preliminary technical studies

Due to the intensity and frequency of the hazards, especially in the dark red, red and dark blue zones of the risk prevention plan, constructibility is subject to the completion of a preliminary technical study intended to make the project (constructions and structures, works and developments, leisure activities, equipment and infrastructures) compatible with the hazards under consideration. This study should determine the conditions of implementation, use or operation of the project (adaptations of the project to the site) and show to what extent the project factors in these considerations at the design stage.

The regulations in the risk prevention plan provide for this study in the following cases:

- New structures where they are authorised,
- Reconstruction of damaged properties,
- Works, structures and developments intended to reduce hazards.

The objectives are twofold:

- The project must be sized to withstand hazards without endangering its structure, property or the people it accommodates;
- The project must be designed to limit, as far as possible, its impact on the surrounding natural sedimentary processes and/or not to aggravate the hazards of coastal flooding and coastline recession in the short, medium or long term.

On this basis, when applying for a building or development permit, the applicant must provide, via the project architect, **a vulnerability reduction certificate** attesting to the fact that geotechnical and structural studies have been carried out by specialist design offices.

With regards to reconstruction, it is required as per Article 46 - 21 paragraph 5 of the urban planning code of the overseas collectivity of Saint-Martin, in order to ensure a preliminary technical study and the conformity of the project from conception to construction, with its stipulations aimed, in particular, at protecting against the wave energy shock and washouts.

Exceptional fund for Saint Martin

The Prefect of Saint-Barthélemy and Saint-Martin is actively working with the overseas collectivity of Saint-Martin to find specific aid that could be allocated to people with modest incomes on the island, with the aim of ensuring the safety of properties and people through the implementation of vulnerability reduction measures. The aim, therefore, would be to participate financially in carrying out the compulsory preliminary technical studies.

The preliminary technical study should address the following points, specified below:

1. Implementation of the project in relation to the mechanical wave impact hazard
2. Reduction of the project's vulnerability to the coastal flooding and mechanical wave impact hazards
3. Reducing the impact of the project on the hazards

This technical study must be proportionate to the nature and challenges of the project. Depending on the situation, to be demonstrated by the architect, the latter could be reduced in terms of the quantity of studies to be produced, while retaining the primary objective of reducing vulnerability. At a minimum, the study should highlight, in the case of reconstruction, solutions for reducing the vulnerability of people and properties, and in the case of new construction, measures to limit vulnerability.

It is important to recall that the implementation of the solutions provided by these preliminary technical studies will make it possible ensure the safety of people and properties, and thus strengthen their positions.

3.1. Location of the project in relation to the mechanical wave impact hazard

Mechanical wave impact hazards relate to the pressures exerted by the impact of the waves on the structures. Mechanical wave impacts are extremely violent and are considered a hazard in their own right. This phenomenon can be very destructive during major hurricane events.

When such a phenomenon affects an existing structure or building, there is little room for manoeuvre to reduce the vulnerability of the structure. For this reason, it is advisable to adopt an approach that is aimed at adapting and anticipating the characterised phenomena by ensuring that the construction is sited as far as possible from the sea shore, a fortiori and if possible outside the zone of the reference mechanical wave impact hazard.

The geotechnical and structural studies carried out by the design office must therefore deal first with this subject in order to assess the most appropriate location. This issue may also be imposed in the risk prevention plan regulations (e.g. reconstruction of damaged properties and buildings classified as unfit for habitation, provided that they are built on the same land unit but as far away as possible from the seafront). Innovative measures including new structures and materials shall be permitted and recommended (example: building close to the coast but perpendicular to the sea, etc.)

3.2. Reduction of the project's vulnerability to the coastal flooding and mechanical wave impact hazards

The coastal flooding hazard covers the phenomena of flooding but also the energetic action induced by the impact of the waves, the projection of pebbles or various projectiles (wood, floating objects, etc.) as well as washouts.

The study must ultimately analyse the vulnerability of the planned developments to each of these phenomena and formulate technical recommendations to enhance the project at the design stage.

The analysis should be detailed and differentiated for each of the project's elements: building, terrace, shelter, swimming pool, etc.

During this analysis, the exposure to hazards can be fine tuned and broken down for each element and for each façade of the buildings or structures (for example, façades facing the ocean may be exposed to more intense hazards than others).

An analysis of the vulnerability of the project's components must then be carried out with regard to the various phenomena identified. This vulnerability shall be assessed according to the specific characteristics of each of the elements of the project: nature, structure, layout, use, etc.

Depending on the conclusions of the analysis, technical recommendations should then be proposed and broken down for each element of a given project (building, terrace, shelter, swimming pool, etc.) Examples include (but are not limited to) the following measures:

- Raising of floors (at least according to the rules defined by the revision of the Natural Risk Prevention Plan for the coastal flooding hazard)
- Installation of shutters on openings exposed to wave impacts and pebble projections
- Upgrading or replacement of existing woodwork to current standards (safety glass) on façades exposed to wave impacts and pebble projections
- Limiting or securing floating items or items that can be swept away by water
- Structures on piles where water would pass underneath
- etc.

The project must also take account of the problems of washout of building foundations and potential soil erosion caused by the flooding hazard or by an eventual retreat of the coastline. Specific measures may be proposed to reduce this risk.

In the particular case of an extension project on the first floor of an existing building, the vulnerability analysis must cover the extension project as well as the existing building. The measures to reduce vulnerability must therefore concern the whole building. A list of measures should therefore be provided based on the expert's proposals. It should be accompanied by a documented justification to ensure the relevance of the measures to the hazards considered.

3.3. Reducing the impact of the project on the hazards

The impact of the project on natural dynamics strongly depends on the nature of the project (construction, structures, works, developments, equipment and / or infrastructure), geometric and structural characteristics as well as their position on the coast. In some cases, there may also be an impact on the hazards themselves or on the hydro-sedimentary processes that govern the natural dynamics of barrier beaches. The impact of such a project can be broken down to two important time scales: the project’s immediate impact and the long-term impact of the project.

Event-driven impact

These are the interactions that will occur between the project and its environment during a meteorological energy event (hurricanes, storms, etc.). These interactions can have several origins:

- The project will interact with the sheets of water projected inland by the waves (flooding by overtopping - *see glossary*).

- Due to the existence of impassable hard points, the project will generate turbulence and flow concentration phenomena, potentially leading to loose materials being carried away and the washout of the structure.
- If the project is under-designed for energetic wave impacts and washout phenomena, it may suffer damage during the event. Depending on the nature of the project, it may be toppled or pulled apart.
- This damage may result in worsened exposure (compared to the previous situation) of the more inland zones to both coastal hazards.

Long-term impact

These are the interactions that will occur between the project and its environment under non-exceptional environmental conditions. In this type of configuration, sediment exchanges can exist between the different morphological compartments of the barrier beaches. The presence of the project may disrupt these exchanges and, in the long term, undermine the sediment balance of the barrier beach on which it is located.

Taking account of these two time scales in the design is essential in order to plan for the long term with the aim of reducing the impact of the project on natural hazards.

The study required for constructions, structures, developments, equipment and/or infrastructures must therefore address the following points:

- Identification and mapping of the morphological elements of the barrier beach: dune ridge, different compartments of the beach. If the dune no longer exists, the study must determine the reasons for this (presence of a development, presence of unsuitable vegetation). The study will then have to determine the area over which this dune should extend. A minimum width of 20 m inland of the beach should be considered. This area of dune recolonisation shall be a space to be preserved in the development project.
- Identification and mapping of natural species present on the barrier beach that contribute to the stabilisation of existing soils.
- Identification and description of the nature of the soil in place: fine or coarse sand, pebbles, earth, silt, etc. If necessary, one or more granulometric analyses should be carried out to characterise the soil.
- Identification of the existing hydrodynamic and hydro-sedimentary conditions on the site.
- The study must include an analysis and evaluation of the impact of the project elements on the surrounding natural processes (wind sediment transport, cross shore, long shore, wave/project interactions, etc.).

The results of the above analyses should be used to propose concrete measures for adapting the project to limit its impact and to propose compensatory measures for the surrounding natural processes.

In the design of the project, the objectives to be achieved shall be as follows:

- Unless justified, avoid any installation of structures and hard points on the beach/dune system as well as on the dune recolonisation zone.

- For terraces positioned on the sand, continuous foundations should be avoided in favour of solutions for terraces on blocks or laid directly on the sand (interlocking grating slabs).
- Ensure maximum hydraulic transparency with respect to hydraulic flows and sediment transport on the site.
- Unless justified, favour soft solutions that integrate the resilience of existing vegetated and natural systems: dune systems, creeping species.
- Encourage directly (by planting) or indirectly (by encouraging their extension and protection from trampling and machine traffic) the extension of surrounding resilient natural environments.

Chapter IV

Measures relating to existing properties and activities

The measures presented are intended to ensure the safety of people, on the one hand, and to limit material and economic damage, on the other. Beyond the immediate civil protection issues, the aim is also to reduce the psychological trauma linked to a flood by making it easier to wait for help or for the flood to subside, as well as a possible evacuation in satisfactory conditions of comfort and safety.

1. Measures to ensure the safety of people

1.1. Sensitive facilities or establishments

Sensitive facilities are collective establishments intended to accommodate mainly people who are vulnerable to the risk of coastal flooding, as well as facilities that are essential to crisis management if an event occurs. These establishments are generally treated in a specific way and given priority in the event of a crisis. These are, for example, schools, health care "centres" (clinics, retirement homes, etc.), strategic organisations (emergency centre, local authority building), companies with a high environmental or economic risk. We also speak of Public Access Buildings (ERP) defined by the Decree of 25 June 1980. In this report, the generic term "sensitive establishment" encompasses all so-called sensitive, vulnerable or strategic establishments, whether or not they are classified as public access buildings or not *(see glossary)*.

The following are thus considered to be sensitive facilities:

- crèches and day-care centres, nursery schools and primary schools of Saint-Martin (public access buildings referenced R),
- hospitals, clinics and convalescent facilities, facilities for the disabled, retirement homes and residential homes (public access buildings referenced J and U),
- fire stations, gendarmeries and police stations, rescue centres, premises hosting command and coordination operations in the context of crisis management,
- Any strategic facility in the energy or telecommunications sector, the shut-down of which could have serious socio-economic consequences.

1.2. Floating objects

It is important to prevent the scattering and floating of objects that could be washed away and injure people, hit and weaken buildings, pollute the environment, or create downstream pile-ups. This measure concerns:

Storage or stowage of pollutants

Polluting or moisture-sensitive products, hazardous or potentially hazardous materials must be stored:

➔ either in an enclosure whose level is above the reference elevation,

➔ or in a watertight, closed enclosure, weighted or lashed and resistant to the hydrostatic pressures of flood drainage and run-off.

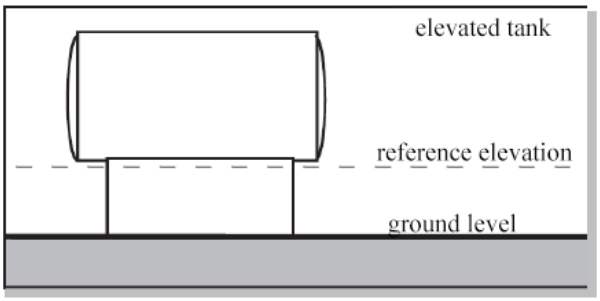
Tank stowage

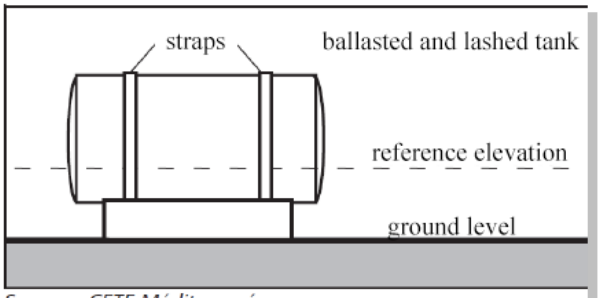
Outdoor tanks must be located above flood water level:

➔ either by moving them to a non-submersible location,

➔ or by creating a support of sufficient height and resistant to hydrostatic pressures so that the tank is located above the reference elevation.

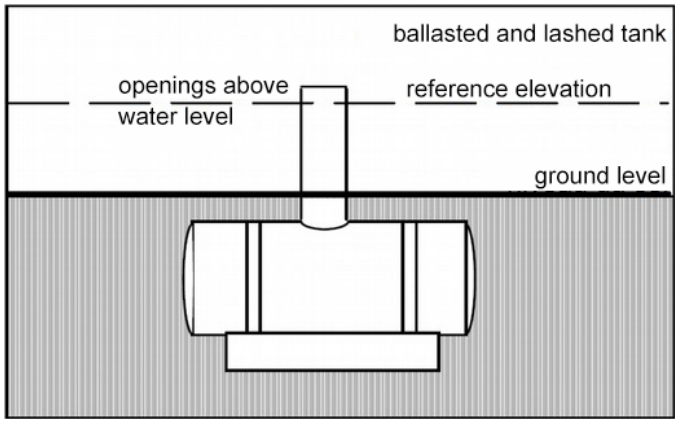
If not, they must be lashed to a concrete mass serving as ballast. The soil must withstand the hydrostatic pressures of flood drainage and run-off.





Source : CETE Méditerranée.

Underground tanks must be ballasted or anchored. Their non-watertight openings and vents must be located above the reference elevation, protected from any impact and able to withstand hydrostatic pressure. Otherwise, these openings must be fitted with an automatic shut-off device in the event of immersion. The applicant must take all measures to prevent the introduction or removal of substances inherent to the storage.



Lashing outdoor furniture

Outdoor furniture or any other object (excluding objects that can easily be brought inside in the event of an alert) must be anchored or tied. The soil must withstand the hydrostatic pressures of flood drainage and run-off.

1.3. Swimming pools

Swimming pool construction regulations must include variations in hydrostatic pressure and signage. It is possible, for example, to indicate the location of and route to private swimming pools or existing pools by way of robust markings and signs, properly secured so as not to be washed away and exceeding the reference benchmark.

Private pool equipped with a safety barrier

The safety barrier remains visible as long as the water level is below its height

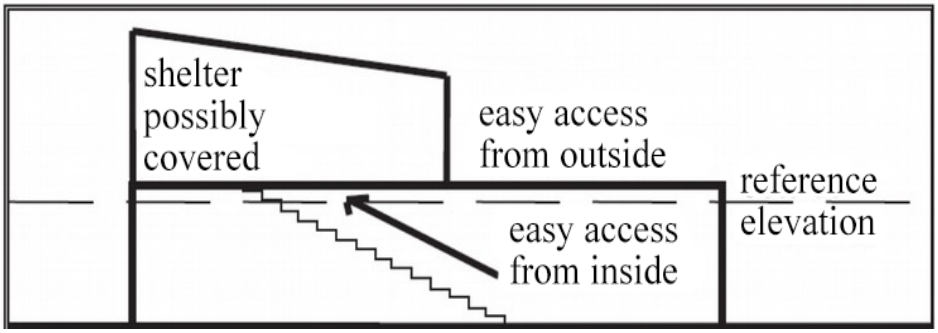
The maintenance area must be buried, sealed watertight and away from water. Safety devices (shutters or covers) must not interfere with the flow of flooding and be properly anchored so as not to be washed away Any residual electronic systems or controls must be watertight and away from the water.

1.4. Shelter

This shelter can have three distinct functions, namely:

- ✔ Allow the occupants of the building to take shelter while awaiting evacuation,
- ✔ Serve as a dry storage area for vulnerable, essential and valuable goods,
- ✔ Serve as a living area for temporary accommodation while waiting for repairs or drying of flooded areas.

In extreme, high and medium-risk hazard zones, where the water-level in the case of flooding or submersion floods living areas, individual single-storey or multi-storey buildings must identify or create a shelter (attic, upstairs room, terrace, etc.) located above the reference benchmark level, the structure and dimensions of which are adequate, accessible from the inside, and have an exit accessible from the outside (avoiding the roof in the event of a hurricane) for the emergency services (*see* Chapter II.).



1.5. Sleeping quarters

In very high, high and medium hazard zones, structures with one or more floors must not have sleeping quarters on the ground floor.

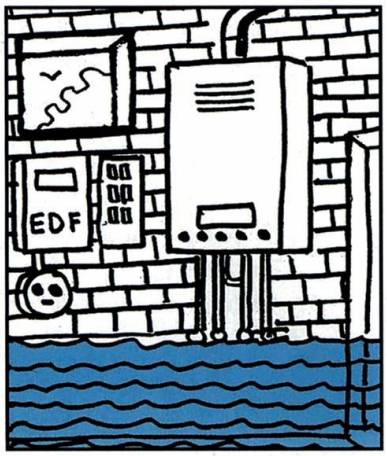
If this provision cannot be implemented, these buildings must identify a shelter capable of accommodating all the ground floor occupants during the event *(see Chapter II*).

Constructions housing one or more persons with reduced mobility (disabled persons, elderly persons) must be specifically identified so that their evacuation can be taken into account during crisis management.

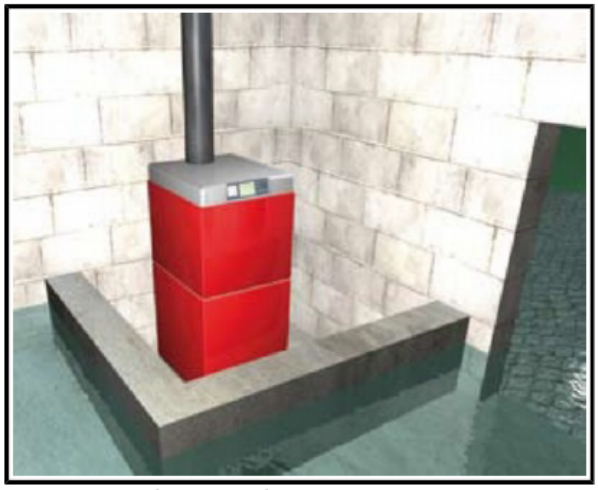
2. Measures to limit damage to property

2.1. Water sensitive equipment

Technical installations sensitive to water, that could malfunction in the event of flooding or submersion with consequences for the safety of people and property (electrical installations, etc.), must, as far as possible, be located above the water reference dimension.



Otherwise, installations that are difficult to move (boilers, heat pumps, meters, etc.) may be installed inside watertight casing up to the benchmark elevation.



Example of protection of sensitive installations by means of a watertight device

Example of raising the height of sensitive installations above flood water level

This measure also concerns external network infrastructures (electrical transformer, public distribution network box, gas pressure reduction station, telephone cabinet, wastewater discharge station, drinking water catchment and pumping works, wastewater treatment plants, etc.). The provisions to be put in place are identical to those required for new projects.

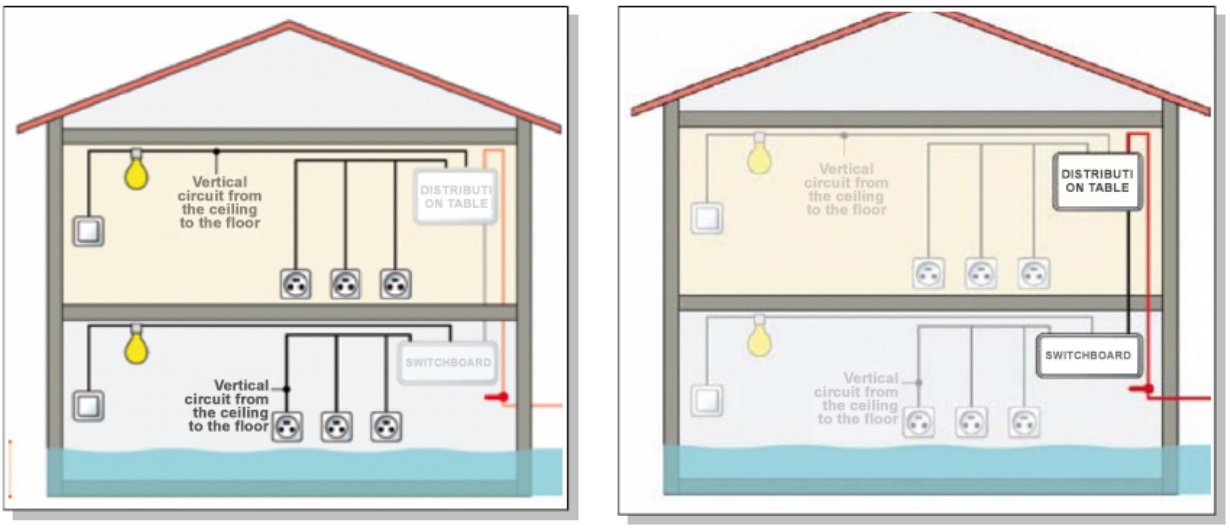
Network inputs

The network inputs must be sealed with specific waterproof joints to avoid water infiltration.

Works carried out during a change of use

Within the framework of works carried out with an authorised change of use, top-down electrical networks (a network in high position: ceiling of the ground floor or the floor of the upper floors) must be set up in order to facilitate the evacuation of water in the lines and to avoid the stagnation of water (dysfunctions).

For constructions with a floor above the water level, the electrical switchboard shall be designed in such a way that the electricity can be easily cut off in the flooded levels while maintaining the power supply in the upper levels.



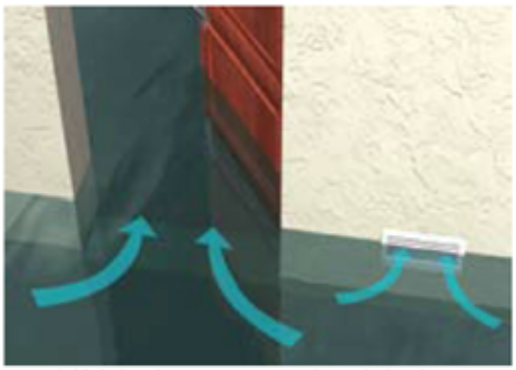
Principle of separation of electrical installations

2.2. Filling of openings or sealing

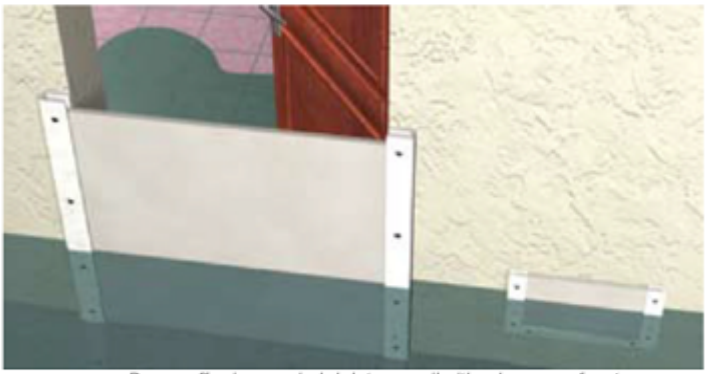
Filling

During a flood, temporary filling of each door, French window, garage access opening, etc. and air vents/ventilation opening etc. serving a habitable floor and located entirely or partly below the reference elevation. For openings, the installation of cofferdams makes it possible to limit or delay the entry of water in **zones where the water height is less than 1 m**. Their height will be limited to 0.80 m in order to allow the passage of emergency services and to avoid an excessive pressure difference between the inside of the building and the outside.

In the case of verandas, a similar device should preferably be installed between the connecting door of the veranda and the "dwelling".



Initial situation: water enters through the doors



Door cofferdam and air inlet cover limiting ingress of water

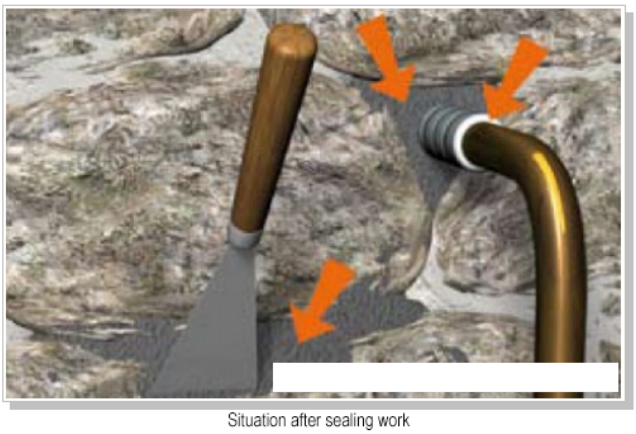
In areas subject to mechanical wave impact and projections of materials, openings susceptible to glass breakage should be protected by a suitable device offering pressure and impact resistance.

Sealing

Limiting the penetration of water into a building, caused by construction defects, requires the application of the following measures in the upper parts of the areas likely to be immersed:

- ✔ repairing defective joints in exposed stone or brickwork,
- ✔ treatment of cracks,
- ✔ sealing around penetrations, sealing of voids between ducts and pipes.

Initial situation before sealing



Situation after sealing work

EVERY OPPORTUNITY TO REDUCE THE VULNERABILITY OF THE CONSTRUCTIONS MUST BE TAKEN

(raising the building height, interior alterations, replacement of floor coverings, replacement of woodwork, etc.)

GLOSSARY

To ensure proper understanding of this revision of the Hurricane Risk Prevention Plan, it is essential for agreement to be reached on the definition of certain acronyms and technical terms appearing in the present regulation, and in the presentation report. The following definitions are intended to provide a common language for the various stakeholders and to facilitate understanding of the documents for non-specialists.

A

Aerodrome : A civil or military site, that permits aircraft to take off and land, with the required infrastructure necessary for their assignments. The airport is therefore located on an aerodrome.

Airport: Collection of installations (aerodrome, air terminal, hangars) necessary for air traffic; organisation managing this.

Annexes: Annexes are considered to be secondary premises constituting outbuildings intended for use other than housing, such as storerooms, cellars, sheds, garden sheds, greenhouses, non-professional workshops, garages. In the 2021 hurricane Natural Risk Prevention Plan for Saint-Martin, the provisions applicable to an "annex" are those for new constructions. However, the change of use of an annex is permitted if it does not increase the vulnerability.

B

BD TOPO® The topographic database is used as a reference for the localisation of thematic information relating to development, environmental or urban planning issues.

C

Change of use and reduction of vulnerability: a change of use is the transformation of an area to change its use. Article 13 – 21 of the Urban planning code of the overseas collectivity of Saint-Martin distinguishes between seven classes of structures which have been grouped here according to their vulnerability (B, C, D). A specific vulnerability class (A) has been added for strategic establishments or those hosting vulnerable populations.

Classification of constructions by vulnerability class:

A) Establishments hosting vulnerable populations and strategic establishments (nurseries, hospitals, retirement homes, nursing homes, etc.)

B) Sleeping quarters (of housing): dwelling, accommodation, hotel and tourist accommodation

C) Business premises (excluding housing): offices, shops, crafts and industries

D) Storage premises: warehouse function, farm or forestry building, garage, shed, annexes.

The risk prevention plan regulation stipulates that all works are permitted, provided that they do not increase vulnerability; therefore, any transformation is considered to be a change of use that increases vulnerability:

- that increases the number of people and/or the number of places for sleeping,
- or that increases the risk, such as converting a shed into a dwelling.

In relation to the above-mentioned groups of buildings, the following hierarchy is applied in decreasing order of vulnerability: **A > B > C > D**.

For example, converting a shed into a business (D to C) or an office into a dwelling (C to B) increases vulnerability, while converting a dwelling into a business (B to C) reduces vulnerability.

It is important to note that:

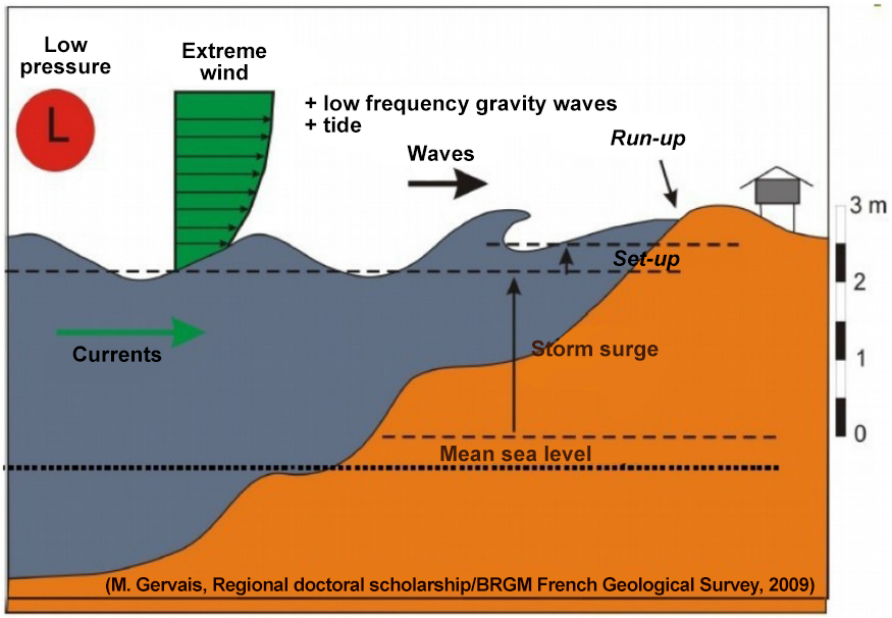
- A hotel that provides accommodation is comparable to a dwelling (even if it has a special security plan), thus making it a category B structure.
- However, **although hotels, lodges or guest houses are comparable to dwellings (referred to above in B), their conversion into residential accommodation (following, in particular, a cessation of the activity or part of the activity) increases vulnerability.** Indeed, the temporary use of these establishments tends to make their occupation non-permanent, unlike that of a dwelling, which tends to be permanent. Similarly, material goods are more numerous.
- In terms of vulnerability, a restaurant is a business-type activity because it does not have accommodation
- The conversion of a dwelling into multiple dwellings increases vulnerability, even if the vulnerability class (B) does not change.

A compartmentalisation of premises within the same building does not allow a distinction to be made between different classes of vulnerability. Vulnerability extends to the scale of the entire building and not to the scale of a specific room or space within the building.

Coastal flooding: Coastal floods are temporary inundations of the coastal zone by the sea during unfavourable meteorological and oceanic conditions (low atmospheric pressure and strong inflow wind taking place, for tidal seas, during a high tide); they can last from a few hours to a few days.

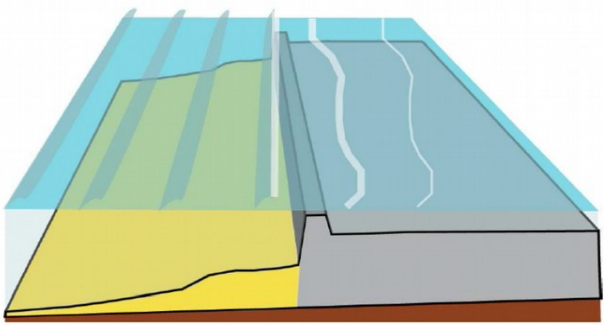
There are three distinct modes of coastal flooding:

- Flooding by overflow;
- Flooding through wave-related sea surges;
- Flooding due to a breach of the protection system, whereby inland zones are below sea level: failure of a protection structure or breach in a natural barrier, following wave attacks (energy released during the surge), or due to poor maintenance of a structure, chronic intensive erosion, overflow, sediment imbalance in the natural barrier, etc.



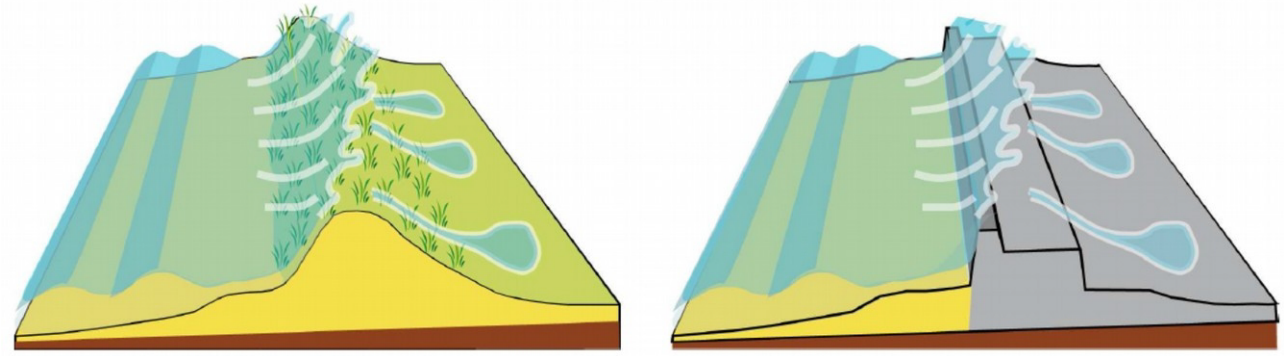
Overflow flooding

Overflow flooding occurs when the sea level rises above the level of a structure or the top of a natural barrier. This type of flooding often occurs in sheltered areas such as estuaries or harbours when the sea level is higher than the crest level of the structures or the natural terrain.



Flooding by sea surges

Wave surges over a natural barrier of a protection or fixation structure. The mean sea level remains lower at the top of the structure, but the beach profile and the dimensions of the structure mean that it can be crossed by waves breaking on the structure.



Critical factors: People, properties, activities, resources, assets, etc., likely to be affected by a natural phenomenon. The critical factors are assessed not only for the present but also for the future.

See related definitions: Hazard, Risk, Vulnerability

> *As an example: The vulnerability of the population is caused by its presence in a flood-prone zone. The danger arises especially when the warning and evacuation times are too short or non-existent for so-called flash or torrential floods. The danger is in the risk of being swept away or of drowning, but also of being marooned on islets cut off from all access. The interruption of communications can also have serious consequences, particularly when it complicates or prevents the emergency services from responding. Property damage mainly affects movable and immovable property. However, indirect damage (loss of business, technical unemployment, etc.) is often more significant than direct damage. Damage to the natural environment is often due to erosion, material deposits, displacement of the river bed, etc. A risk of pollution or technological accident can be envisaged when industrial zones are located in flood-prone zones.*

Erosion: A range of external phenomena which, at the surface of the ground or at a shallow depth, modify the relief by removing solid matter. Coastal erosion is a natural or anthropogenic phenomenon resulting from physical or mechanical processes that bring about the disintegration of rocks and the removal of debris by a fluid; it occurs in many places in the world.

Expert: A person skilled and responsible in specific fields requiring special knowledge and requiring purely technical skill. The expert has certification to prove the validity of his/her expertise. In the case of the risk prevention plan, experts include architects, design office engineers or other specialists able to provide approvals, accreditations or diplomas in the relevant fields.

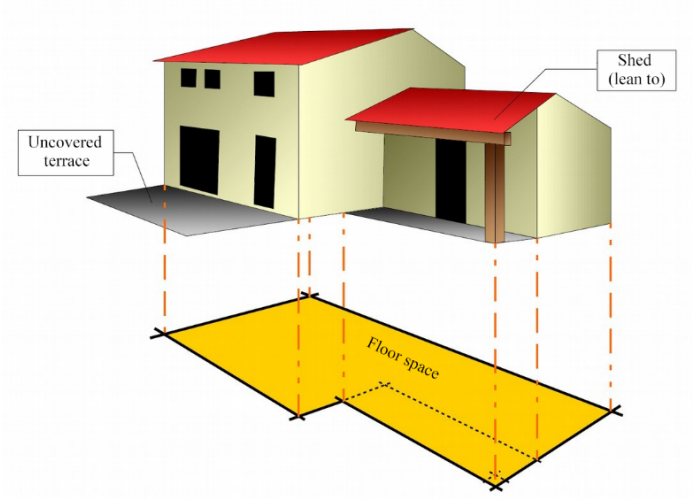
Extension: *See definition of "New construction"*.

Ferry Terminal: A maritime terminal, also called port terminal, ferry terminal, maritime passenger terminal, is a port infrastructure where ferries and cruise ships welcome passengers and vehicles.

First functional floor: The lowest level of a construction where an activity of any kind (industry, crafts, commerce, services) is carried out on a permanent basis, with the exception of housing.

First habitable floor: The lowest level of a construction in which one (or more) living room(s) is (are) used by day or night, such as living room, bedroom, office, kitchen, bathroom. The accesses, horizontal and/or vertical passageways, the storage rooms, cloakrooms or storerooms (dustbin room, bicycle and pushchair room, etc.), the technical rooms, the cellars and the garages are not considered as habitable.

Footprint: The objective of the limitations on the extension of buildings on the ground is to preserve the flood expansion capacity and limit the damage to property. This is why the footprint is defined as the vertical projection of the volume of the construction, all eaves and overhangs included (terraces on the same level are not included).



G

General development: development resulting from examination of a territorial project, integrating the objective of an overall reduction of vulnerability. This applies to an overall project and not to an individual project. All the hazards present in the zone must be taken into account in a comprehensive way so as to allow for effective security of the sector, and avoid aggravating the risk elsewhere. The requirements and prohibitions, applicable to future developments and constructions, are defined by an overall development study and incorporated into the regulations and zoning of the Natural Risk Prevention Plan, by revision of the latter.

Gully: A gully is a natural geomorphological and hydrogeological formation. This basic form of erosion is created by the concentrated run-off of water down a slope. Gullies can form networks and join the hydrographic network. These are natural permanent erosion features. Gullies are dry most of the time (transient hydrological regime). However, they can reach flows of the order of a hundred or even a thousand cubic metres per second during a major flood.

H

Hazard : A natural phenomenon resulting from factors or processes that are at least partially beyond human control: flood, hurricane, landslide, volcanic eruption, earthquake, tsunami. The hazard only becomes a **risk** in the presence of critical human, economic and environmental factors with a certain degree of **vulnerability** (fragility).

For example, a hurricane on a deserted atoll in the Pacific Ocean is not a risk, but a hurricane on inhabited areas of the island of Saint-Martin becomes a major risk and can cause considerable damage.

In a given area, a hazard is more or less likely to occur and involves a large degree of uncertainty as to when and how it will happen. The scientific analysis of the hazard includes the description of the nature of the phenomenon, its intensity and the probability of its occurrence.

See related definitions: Critical factors, Risk, Vulnerability

Hurricane: Squall, violent storm characterised by swirling winds; a moving atmospheric disturbance revolving around a centre of low pressure (eye of the storm).

Hydrophobic: A substance or material that cannot get wet.

Hydrostatic pressure: This is the pressure exerted by water on the surface of a submerged body.

I

Intermodal Terminal: Terminal permitting different forms of transport.

L

Land unit: A land unit is a single block of property, consisting of a parcel or a group of parcels belonging to the same owner or to a joint ownership.

Light catering takeaway area: A fast-food outlet located on the coastal strip, the characteristics of which are described below:

- A permanent building, with a maximum floor area of 50 m², accommodating a kitchen area, meal preparation, food storage and a sales area with a counter open to the outside.
- A terrace allowing tables to be installed for consumption on the spot. Two options are possible: a terrace made with an aerated grating laid on discontinuous foundations (isolated blocks) above the natural ground; a terrace made with a grating laid directly on the sand (interlocking grating slabs). The tables are placed directly on the natural ground. In order to protect customers from the sun, the terrace can be covered by light structures using natural materials (wood, mulch, etc.). The surface area of the terrace may not exceed 150 m².

Light leisure dwellings: Constructions that can be disassembled or transported intended for temporary or seasonal occupation for recreational purposes

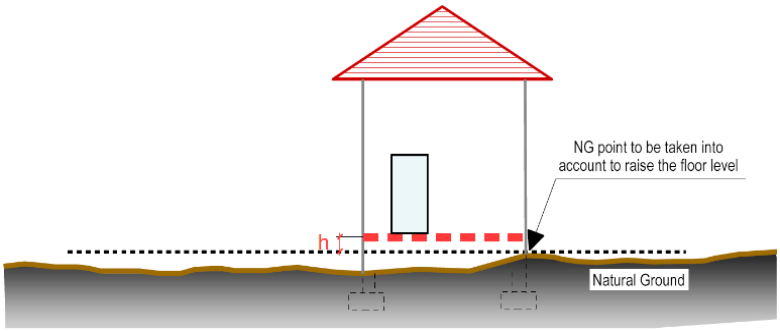
Natural ground: The lowest point of a construction project. The height of a construction is measured from the existing ground level before any raising or excavation work carried out for the purpose of the project for which a building permit is requested. This therefore means that changes in the level of the land that have occurred without a direct link to the work in the building permit are not factored in. *See definition of the reference elevation, natural ground level*

Definition of elevation in relation to natural ground level

The regulation uses the notion of "elevation in relation to natural ground level" which merits being clarified for complex cases. It is particularly used for fluid drainage (torrential overflows, floods, run-off). The following rules are defined in accordance with Article L.562-1 of the Environment Code.

Irregularities

Local irregularities in the topography are not necessarily taken into account if they cover only a small surface in relation to the total area of the parcel. Also, in the case of small basins, it is necessary to consider that the elevation of the natural ground is the average elevation of the surrounding ground (the hollows being quickly filled by the drainage), according to the diagram below.

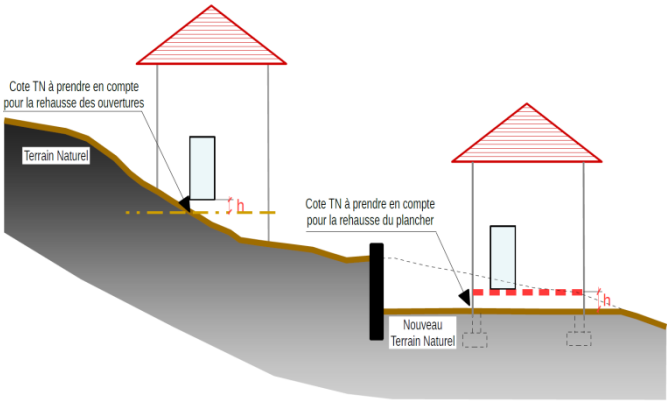


⇒ In the case of excavated earthworks, the height must be measured in relation to the initial natural ground.

⇒ In the event of backfill earthworks, which should be avoided, they can only replace the reinforcement of exposed façades if they are adjacent to the construction and if they have been specifically designed for this (facing exposure to runoff except for flooding in the plains, dimensioning to withstand foreseeable stresses, etc.). In general, the height to be reinforced will be measured from the top of the embankments.

Slope

In the case of construction without earthwork, it should be taken into account that the level of the natural ground is the altitude of the ground to the right of the projected openings. In the case of excavated earthworks with the construction of a retaining wall, the elevation of the natural ground must be considered to be the elevation of the lowered ground behind the structure.



Any particular architectural arrangement that does not fit into this scheme of principles must be treated with the utmost safety in mind.

Natural zone: The natural or forested zones may correspond to areas of the community equipped or not, to be protected because:

- of the quality of the sites, environments and natural spaces, landscapes and their interest, in particular from an aesthetic, historical or ecological historical or ecological point of view;
- or their character as natural areas;
- or the need to preserve or restore natural resources;
- or the need to prevent risks, particularly those relating to flood expansion.

New construction: Construction on an unoccupied parcel and/or extension of a building. As regards the extension, a specific measure of vulnerability reduction may be granted on the scale of the building: this measure must not exceed 25% of the floor area and be limited to 50 m². *Examples: Moving a bedroom upstairs, creating a safe room (shelter).* All applications are subject to a building permit.

O

Opening: Opening is understood to mean a door, window, French window, roof window.

P

Picnic huts: Sheltered or unenclosed spaces with a limited footprint, allowing users to picnic. A distinction should be made with light food takeaway areas.

Probability of occurrence: Within the meaning of Article L.512-1 of the French Environment Code, the probability of occurrence of an accident is its estimated future frequency of occurrence at the facility in question.

Protection: Measures to limit the extent and/or severity of the consequences of an accident on vulnerable elements, without altering the probability of occurrence of the corresponding hazardous event.

Public utility easement: Administrative limitations on the right of ownership and use of the land; administrative easement that must be annexed to the urban plan.

R

Reconstruction after a hurricane: Reconstruction of a building destroyed by hurricane Irma or by the last known hurricane and not regarded as a ruin prior to the disaster (existence of the main load-bearing walls).

Reference elevation: This is the sea level reached by the highest known flood. It corresponds, for a given plot of land, to the elevation (altitude of a point) that water would reach on this land for an exceptional flood or coastal flooding, increased by a safety margin (e.g.: 0.15 m, 0.30 m, 0.50 m).

Depending on the hazard, certain projects will be permitted under certain conditions to ensure the safety of occupants and property. One of these conditions is the installation of the projected floors above the reference elevation, in order to guarantee the absence of water in all the rooms of the projected construction in case of a 100-year flood. In order to achieve this objective, applicants must be able to easily determine in the risk prevention plan documents the increased height that they must apply to the planned construction. The reference elevation corresponds to this increased height and is a specific value for each regulatory zone of the risk prevention plan. It is indeed a fixed reference level, set for the same class of hazard. These reference elevations cannot be included in the regulatory zoning plan, because it links the hazard and the critical situations; the reference elevation must therefore be defined on the basis of the hazard map.

The water level is the high value of each hazard class for the reference coastal flooding. As a precautionary measure, the reference elevation (or floor level) is determined at 20 cm above this maximum water level. This 20 cm corresponds to both the average thickness of a floor slab and the uncertainty related to the construction of the hydraulic model. The reference elevation is set above the natural ground (NG) in line with the construction's footprint.

Below is the table of reference elevation values to be adhered to according to the hazard applicable to the project.

Reference elevation value according to the hazard

Hazard class	**Maximum water height for the reference coastal flooding hazard**	**Reference elevation = Floor value**
Very high hazard	Greater than 2 m (no upper limit)	NG + 2.50 m = height of one floor
High hazard	Between 1 m and 2 m	NG + 1.50 m
Medium hazard	Between 0.50 m and 1 m	NG + 1.20 m
Low hazard	Less than 0.50 m	NG + 0.70 m

Reference hazard (current hazard): The hazard envelope corresponding to the reference scenarios. The reference hazard takes into account natural and possibly technological events (*see definition of "Reference natural event"*) with in particular:

- the mean sea level at the coast integrating the barometric surge and the wave-related rise
- a safety margin to take uncertainties into account (not taken into account in this Natural Risk Prevention Plan)
- a sea level rise of 0.20 m due to the impact of climate change (not taken into account in this Natural Risk Prevention Plan)

The reference hazard used to establish the regulatory zoning of the risk prevention plan for Saint-Martin is hurricane Irma and the height of the coastal floods it caused.

Reference natural event: A major historical event if it is greater than a 100-year return period event. By default, it is the theoretical 100-year return event. It is characterised by at least two parameters: the water level and the significant wave height.

- Water level includes, at mean sea level, the effect of the tide and the meteorological surge (but not the effect of waves).
- The sea level, calculated at the coast, incorporates the water level and the effect of waves in the form of the wave surge. Sea level is calculated at high tide for tidal coasts.

The event selected is the most detrimental in terms of flooding, which is the most detrimental in terms of incoming volumes. These volumes of water are linked to three modes of flooding: overflow, sea surge and breach (*see definition "Coastal flooding"*).

Regulatory easement: Prohibition, limitation or requirement relating to constructions and structures, defined in certain zones by a regulatory order.

Regulatory mapping of natural risks: Essential part of the policy to combat natural disasters to determine the exposed zones and define the necessary preventive measures.

Requalification : *See definition of "Change of use".*

Risk: Probable loss of life, property and business due to the occurrence of a natural hazard. The notion of risk corresponds to the conjunction between a hazard and the critical situations.
See related definitions: Hazard, Critical factors, Vulnerability

Major risk: The possibility of an event of natural or man-made origin, the effects of which may involve a large number of people, cause significant damage and exceed society's ability to respond. A major risk is characterised by its low frequency and high severity.

Run-off: Rainwater drainage on the surface of slopes, feeding concentrated run-off in the thalwegs of the waterways.

Sensitive, vulnerable, strategic, public access buildings: Sensitive facilities are understood to be collective establishments intended to host mainly people who are vulnerable to the risks of coastal flooding, as well as facilities that are essential for crisis management if an event occurs. These establishments are generally treated in a specific way and given priority in the event of a crisis. These are, for example, schools, health care "centres" (clinics, retirement homes, etc.), strategic organisations (emergency centre, community hotel), companies with a high environmental or economic risk.

We also talk about **Public Access Buildings (known by the French abbreviation ERP),** defined as any establishment that permanently hosts invalid persons, sick persons, elderly persons or children: hospitals, schools, retirement homes, accommodation centres, maternity hospitals, holiday camps. For the purposes of this Regulation, this includes, as defined in the amended Decree of 25 June 1980:

- Crèches, day-care centres and nursery schools of Saint-Martin (public access buildings referenced R)
- Hospitals, clinics and convalescent facilities, facilities for the disabled, retirement homes and residential homes (public access buildings referenced J and U)
- Fire stations, gendarmeries and police stations, rescue centres, premises for command and coordination operations in the context of crisis management
- Any strategic facility in the energy or telecommunications sector, the shut-down of which could have serious socio-economic consequences.

Public Access Buildings (ERP)
Public access buildings are defined by Article R. 123.2 of the Construction and Housing Code.
Categories of public access buildings:

- 1st category: above 1500 people,
- 2nd category: from 701 to 1500 people,
- 3rd category: from 301 to 700 people,
- 4th category: 300 persons and below, except for establishments included in the 5th category,
- 5th category: Establishments subject to Article R. 123.14 of the Construction and Housing Code in which the general public capacity does not reach the figure fixed by the safety regulations for each type of establishment.

Type of public access building:

- Type J: Establishments for the elderly and disabled.
- Type R: Early learning centres, primary and secondary boarding schools, university residence halls, nursery schools, crèches and day-care centres, holiday centres, leisure centres (without accommodation).
- Type U: Care facilities, specialised facilities (disabled, elderly, etc.), day-care facilities, consultants.

Vulnerable institutions
Vulnerable means:

- Hotels with more than 25 rooms;
- Educational institutions, nursery schools ;
- Grouped or collective housing complexes of more than 50 dwellings;
- Crèches and day care centres;
- Summer camps.

Highly vulnerable institutions

1. Establishments providing overnight accommodation for persons who are not self-sufficient or have reduced mobility. Public access buildings include:
   - Boarding schools
   - Establishments for minors with accommodation (holiday camps, etc.)
   - Care establishments with accommodation (hospitals, clinics, retirement homes, specialised establishments for disabled people, etc.)
2. Prisons
3. Establishments storing substances and preparations that are toxic or dangerous for the environment or which react with water, subject to declaration or authorisation according to the ICPE (Installations Classified for the Protection of the Environment) nomenclature.
4. Establishments storing hydrocarbons are subject to authorisation according to the ICPE nomenclature.
5. Buildings necessary for crisis management (rescue centres, defence, public order, etc.)
6. Camp-sites, light leisure dwellings, residential leisure parks. etc.

Thalwegs: Any depressions in the land where water can flow (natural flow paths).

Urbanisation: The evolution of towns and cities, in terms of numbers of inhabitants, in terms of territorial extension, and also in terms of lifestyle.

Urbanised zones or areas: The urbanised or non-urbanised character of an area is assessed according to the physical reality (number of existing buildings, distance of the land in question from the existing buildings, contiguity with built-up plots, level of access to facilities) and not according to the zoning established by a local urban development plan.

For example, an undeveloped zone eligible for urbanisation cannot be regarded as an urbanised zone. Similarly, a sparsely urbanised area does not systematically constitute an urbanised area.

Urban centre: The Inter-ministerial Statement of 24 April 1996 relating to the provisions applicable to existing buildings and structures in flood-prone areas explains the notion of urban centre. This area is characterised by its history, significant land use, density, build continuity and mixed use between housing, shops and services. The urban centre can give rise to zoning and regulations adapted to its specific features (urbanisation of vacant spaces for example). Urban centres do not correspond to urbanised areas.

Urban planning: The study of the structure, coordination and control of land use in the evolution of towns and cities.

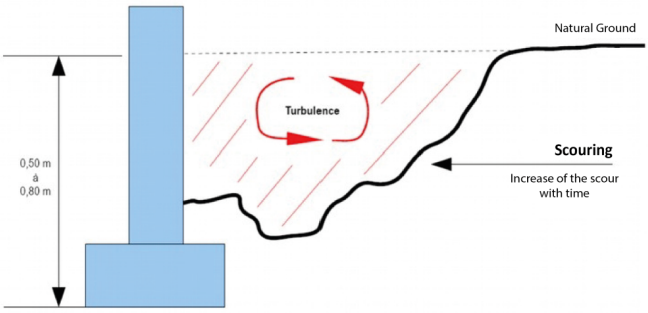
Urban renovation or urban renewal: In urban planning, this is a form of urban development that refers to the action of rebuilding the city on itself and recycling its built and land resources. This aims in particular to deal with the social, economic, urban planning and architectural problems of certain old or run-down districts, as well as to encourage new development trends, particularly economic ones, and to promote solidarity on the scale of the conurbation (better distribution of disadvantaged populations, particularly through social housing). It is a global project aimed at opening up the urban area in the long term, facilitating access to employment, education and culture, while making the area safe from natural hazards.

The main purpose of urban renewal is to limit urban sprawl and suburbanisation by developing concentrated, dense housing, in particular to reduce the ecological footprint of housing, and consequently of the city itself. The city can be renewed in old neighbourhoods (vacant or substandard housing, shops, industrial buildings, facilities, etc.), but also in industrial areas or industrial wasteland.
See definition of "Overall development".

Vacant space: undeveloped land plot, which is characterised as a discontinuity in the surrounding urban morphology. This notion does not apply to a lightly built-up area. It borders several existing built-up areas (or roads) at the date of approval of the risk prevention plan.

Vulnerability: In the broadest sense, vulnerability expresses the level of foreseeable consequences of a natural phenomenon for critical situations. A distinction can be made between economic and human vulnerability.
Economic vulnerability: This generally reflects the degree of loss or damage to property and activities exposed to the occurrence of a phenomenon. It refers to the cost of the damage: restoration, value of lost property, loss of business, etc.
Human vulnerability: It first assesses the potential damage to people's physical and moral integrity. The number of people exposed to the risk, but also the capacity to respond to a crisis situation (e.g. children, the elderly, the disabled, etc., will be highly vulnerable).

Washout (of foundations): Erosion of the soil by the mechanical action of water at the foot of a structure or building. A major washout can destabilise a structure or a building.

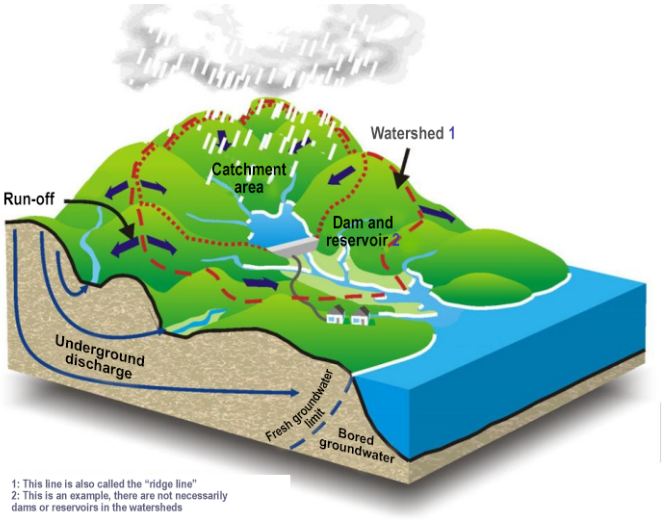


Watershed: A watershed is a portion of land bounded by ridge lines, the waters of which flow into a common outlet (river, pond, sea, ocean, etc.). The watershed is defined as the catchment area considered from the starting point of an outlet, limited by a contour within which precipitated water flowing on the surface and underground towards this outlet is collected.

In a watershed, there is a:

- longitudinal continuity, upstream to downstream
- lateral continuity, from the ridges to the valley floor
- vertical continuity, from surface water to groundwater and vice versa.

The boundaries are the surface water divide.



Waterproof materials: Materials, the characteristics of which are not permanently affected after being submerged.

Water level: "Water level" is the offshore level that incorporates the effect of the tide and meteorological surge (but not the effect of waves) at mean sea level.

Water repellent: Which protects against humidity and is at the same time air permeable.

Overseas Collectivity of Saint-Martin

Recommendations

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The recommendations are not a regulatory document with binding effect. They make it possible to supplement the regulatory measures that apply within the perimeter of the flood-prone zone.
They are intended to be educational and serve as an incentive, the primary objective being to raise awareness of the need to take flood risk into account in development activities. These recommendations are not mandatory but are a strong incentive to implement certain provisions.

General recommendations

The following general recommendations are applicable throughout the territory of the overseas collectivity of Saint-Martin, regardless of the regulatory classification of land in the RPP:

- In general, developments must not aggravate existing natural risks and their effects (including during the construction phase)
- The free drainage of coastal flood waters must not be restricted
- All measures must be taken to ensure that structures likely to be exposed to water can withstand the erosion and pressures that may occur.

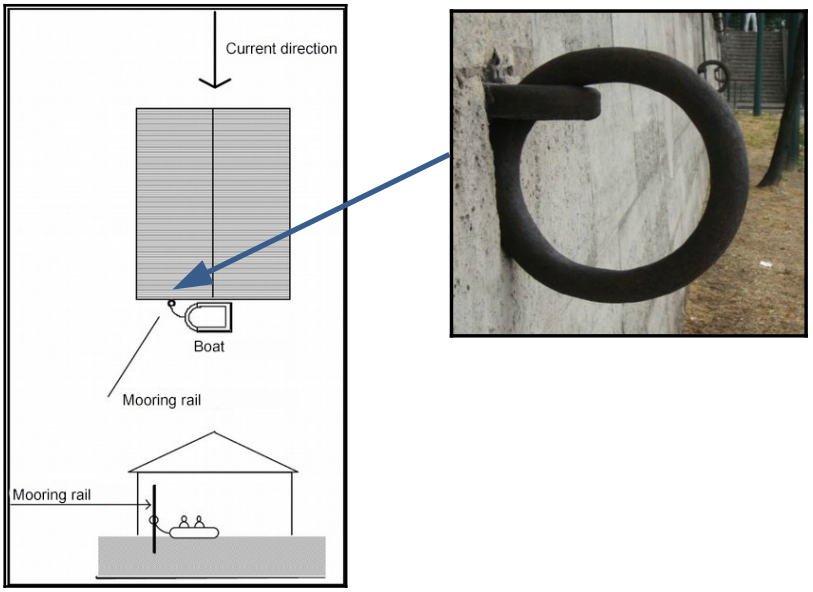
The following recommendations (not exhaustive) are strongly advocated for existing constructions in flood-prone areas following coastal flooding.

Type	Recommendations
SHELTER Identification and development of a **shelter above the reference elevation**	Space offering satisfactory safety conditions in terms of solidity, surface area to be adapted for all residents, ease of calls and signs to the outside.
	Space easily accessible to people from inside the building: interior staircase or ladder.
	Space easily accessible from the outside, for the response of the emergency services (absence of grills on the windows, sufficient openings in number and size, etc.) and the evacuation of people.
FLUID, ELECTRICAL AND TELECOMMUNICATION NETWORKS	Locking of sewerage buffers or protective devices (grid) in flood-prone/submersible areas.
	Implementation of waterproof networks.
	Installation of non-return valves at the connection to the collective wastewater network.
	Waterproofing of power supply units and electrical control panels.
	Installation of automatic circuit breakers isolating only the flood-prone parts.
	Installation of back-up generators for sensitive equipment (hospitals, pumping stations, response centres, etc.).
MATERIALS	Waterproofing of air conditioners.
	Avoid water-sensitive building materials and coatings (plaster, etc.).
INSTALLATIONS AT RISK OF FLOATING	Located above the reference elevation of installations at risk of floating (tanks, cisterns, etc.) or ballasting and appropriate anchoring. In particular, the filling holes and the outlet of non-watertight pipes must also be placed above the reference elevation and protected against any impact.
PERSISHABLE OR POLLUTING DEPOSITS OR STOCKS	Located above the reference elevation or installation in a watertight and secured pit. Evacuation or surveillance measures in case of flooding.
MISCELLANEOUS	Make it possible to close off openings located below the reference elevations with cofferdams.

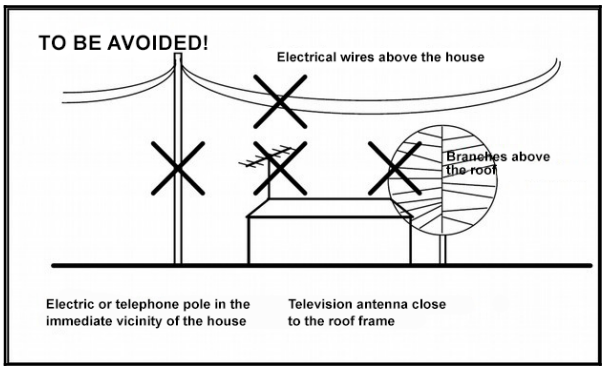
EVACUATION CONDITIONS

In very high to medium hazard areas, in order to improve evacuation conditions, it is advisable to:

➔ either facilitate the stowage of boats by installing a rail anchored on the side opposite the current and near an opening.



➔ or to avoid obstacles around the house that could hinder or endanger the rescue team during a helicopter rescue (branches, TV antennas, electrical wires, etc.)



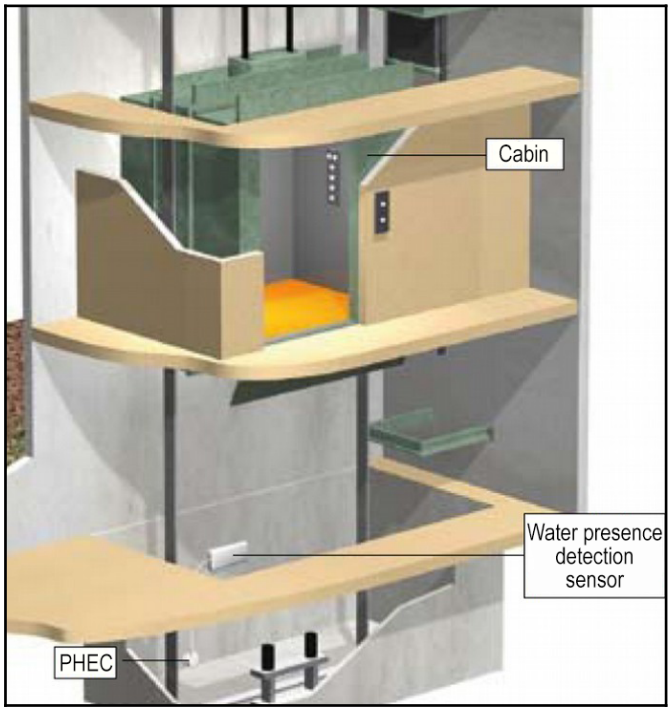
2 Measures to limit damage to property

LIFTS

In buildings already equipped with a lift, it is difficult to change the position of the machinery. The components located at the bottom of the pit cannot be protected and the entire electrical network may be damaged.

For this reason, it is advisable to install a water detector at the bottom of the pit. The latter must be connected to a relay in the machinery that will block the access of the elevator cab to the levels likely to be flooded (example: the cab could stop automatically on the 2nd floor)

Pumping equipment could also be considered to evacuate the water, located at the bottom of the pit, to the outside.



MAINTENANCE OF WATERCOURSES

It is recommended that, before each hurricane period, a specific survey be carried out in order to plan a maintenance or repair campaign on the downstream parts of the watercourses, if necessary.

WATER-SENSITIVE EQUIPMENT AND NETWORKS

In addition to the waterproofing of sensitive installations, it is useful to install vertical electrical networks (network in a high position: ceiling of the ground floor or floor of the first level) in order to facilitate the evacuation of water in the lines and to avoid the stagnation of water (malfunctions).

This means that, after the flood, even if the water level has reached the lowest sockets and switches, they only need to be dismantled so that the water drains from the bottom and thus helps them dry. This measure avoids having to replace them and damaging (opening) the partitions. This type of installation can be accompanied by an automatic start-up device (muffle stop).

Finally, it is **strongly recommended** that the electrical installation complies with the NF C15-100 standard applicable to new constructions since 1991.

EVACUATION OF WATER

The buildings can be equipped with a pump to discharge the water to the outside. Depending on the situation, this device makes it possible to control the water level inside the building and to facilitate cleaning and a return to normal after flooding.

SENSITIVE MATERIALS

The structures of the building (foundations, walls, crawl space, etc.) located below the reference elevation must be treated with waterproofing or anti-corrosive products and maintained regularly.

The parts of the structure located below the reference elevation (wall and floor coverings, thermal and sound protection, joinery, etc.) must be made of materials that are as insensitive to water as possible in order to limit damage as much as possible.

For example:

- ➔ Replacement of sensitive external joinery with PVC joinery, or materials insensitive to water, preferably with a galvanized steel core to reinforce its solidity.

  When this modification is made, the threshold of the external doors can be adjusted:
  - ○ either upwards in the case of very light flooding;
  - ○ or to facilitate cleaning and water drainage, as close as possible to the level of the interior floor.
- ➔ Replacement of carpets and parquet flooring with tiles laid using an adhesive resistant to prolonged submersion;
- ➔ Replacement of thermal insulation (rock wool, etc.) with synthetic materials (polystyrene, polyurethane);
- ➔ Replacement of conventional plaster partitions or linings with waterproof plaster partitions;
- ➔ Caulk network entrances by moving the inlet of these networks above the highest water level, or by caulking these inlets with specific seals;
- ➔ If necessary, fill penetrating cracks (exterior wall) with a suitable material;

PARKING LOTS

In addition to the measures defined in Title III "Preventive, protective and safeguard measures", a system that prohibits access to the car park may be envisaged when a flood is announced.

THE FLOOD SAFETY PLAN (FSP)

This recommendation applies to owners or managers of properties or activities other than those listed below:

- ➔ Vulnerable and highly vulnerable establishments;

➔ Farms subject to declaration or authorisation under Facilities Classified for Environmental Protection (ICPE);

➔ Managers of strategic networks (electricity, drinking water, waste water, gas, telephone, public lighting, roads)

It is comprised of:

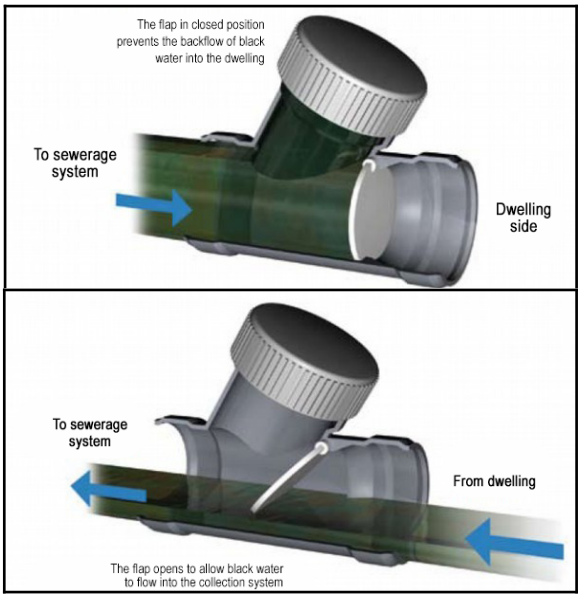
➔ a diagnosis to analyse the vulnerability of the property to flooding;

➔ the implementation of measures to ensure the safety of people and property during the flood;

➔ an action plan that may include the implementation of works and provisions.

THE INDIVIDUAL SEWAGE SYSTEM

The sewage system must be equipped with non-return valves at the outlets of the drains to prevent backflow into dwellings.



This valve can be easily installed in an existing manhole upstream of the network. If necessary, such a manhole will have to be created, with an easily identifiable and accessible cover.