AMENDMENT 437 - Add new Chapter 14M Wind

14M Wind

AMENDMENT 438 - Add new introduction for Chapter 14M Wind)

Introduction

Buildings alter the patterns and speeds of wind around them, and this can result in uncomfortable or even hazardous conditions for people in public spaces. The windy climate of Lower Hutt means that new buildings need to be designed and managed to reduce the impacts of wind on public space.

It is most effective to consider wind in the design of new buildings early in the process, as issues such as building bulk, shape, and site layout can have an impact. Even relatively low buildings (four storeys) can have notable wind effects if they are significantly different to their surrounding buildings.

The design guides for the Central Commercial and Petone Commercial Activity Areas include some guidelines for managing wind in developments. The Council may also publish design guidance around designing for wind. It is advisable to consider these resources early in the design process.

The rules in this chapter apply to building activity in the following activity areas:

* Central Commercial Activity Area
* Petone Commercial Activity Area
* Suburban Mixed Use Activity Area
* Medium Density Residential Activity Area
* High Density Residential Activity Area
* Community Health Activity Area
* General Business Activity Area (where the height limit is greater than 12 metres)
* Community Iwi Activity Area (where the height limit is greater than 12 metres)

In these areas, an assessment of the likely effects of buildings over a specified height is required to ensure that the comfort and safety of pedestrians in public spaces is effectively managed. These rules apply in conjunction with the rules in activity area chapters and with other general rules.

AMENDMENT 439 - Add new section 14M 1 Issue, Objective and Policies

14M 1 Issue, Objective, and Policies

AMENDMENT 440 - Add new section 14M 1.1 Effects of Wind Generated by Buildings on Safety and Comfort

14M 1.1 Effects of Wind Generated by Buildings on Safety and Comfort

AMENDMENT 441 - Add new Issue to section 14M 1.1

Issue

Buildings can alter the pattern and speed of wind at ground level in public spaces. This can affect the comfort of pedestrians in public spaces and even mean that wind conditions can become hazardous. It is important that buildings are designed and operated to manage these effects.

AMENDMENT 442 - Add new Objective to section 14M 1.1

Objective

Within public places in Commercial Activity Areas, High Density Residential and Medium Density Residential Activity Areas, and other urban non-residential activity areas that enable buildings taller than 12 metres:

1. Wind conditions remain safe, and where possible, existing unsafe wind conditions are improved,
2. In key commercial centre locations, wind conditions are comfortable for pedestrians, and
3. The pedestrian wind environment is protected from gradual degradation over time.

AMENDMENT 443 - Add new Policies to section 14M 1.1

Policy

1. Encourage consideration of wind during the early stages of building design to achieve high quality design for wind that minimises the adverse impact on public spaces, with wind mitigation measures contained on site.
2. Require that larger buildings, including significant alterations and additions, are designed to manage adverse wind effects, by meeting specified performance standards.
3. Ensure that where wind effects have been managed through wind mitigation measures, that those mitigation measures are retained and maintained.

AMENDMENT 444 - Add new section 14M 2 Rules

14M 2 Rules

AMENDMENT 445 - Add new section 14M 2.1 Rules – Restricted Discretionary Activities

14M 2.1 Restricted Discretionary Activities

AMENDMENT 446 - Add new Rules 14M 2.1(a) and 14M 2.1(b)

1. The construction, alteration of, and addition to buildings and structures with a height greater than that specified in Table 14M 2.1.1, except for:
2. Alterations that do not change the external building volume, or
3. Additions that increase the building or structure height by no more than 5 metres.
4. Alterations to or removal of existing off-site wind mitigation measures required by a resource consent.

**Non-notification/service**

In respect of Rule 14M 2.1(a) and Rule 14M 2.1(b), public and limited notification is precluded where the standards in 14C 2.1.3 are met.

AMENDMENT 447 - Add new section 14M 2.1.1 Height thresholds for wind assessment

14M 2.1.1 Height thresholds for wind assessment

|  |  |
| --- | --- |
| Location | Height |
| Central Commercial Activity Area – buildings and structures fronting on to streets, pedestrian malls, walkways, or other public space identified in Appendix Wind 1 – Central Commercial Additional Wind Protection | 12 metres |
| Central Commercial Activity Area – other | 22 metres |
| Petone Commercial Activity Area 1 – Jackson Street (as shown in Appendix Petone Commercial 5) | 12 metres |
| Petone Commercial Activity Area 2 – Petone Mixed Use (as shown in Appendix Petone Commercial 6) | 22 metres |
| Suburban Mixed Use Activity Area  Medium Density Residential Activity Area  High Density Residential Activity Area  Community Health Activity Area  General Business Activity Area (where a height control overlay provides for a height limit greater than 12 metres)  Community Iwi Activity Area (where a height control overlay provides for a height limit greater than 12 metres) | 12 metres |

AMENDMENT 448 - Add new section 14M 2.1.2 Matters of Discretion

14M 2.1.2 Matters in which Council has Restricted its Discretion

1. The extent of the effects of wind on public space, including cumulative effects.
2. Any adverse effects on existing wind mitigation measures.
3. The extent to which the design contributes to an improvement of existing unsafe wind conditions.
4. The ongoing protection and operation of wind mitigation measures that are required to meet the performance standards in this chapter.

AMENDMENT 449 - Add new section 14M 2.1.3 Standards

14M 2.1.3 Standards

The buildings and structures shall be designed to comply with the following conditions:

1. Safety: The safety criteria shall apply to all public space. The annual maximum 3-second gust speed shall not exceed 20 m/s. If the annual maximum 3-second gust speed exceeds 20 m/s with the proposed development, it must be reduced to 20 m/s or below.
2. Deterioration of the wind environment criteria apply to all public space.
3. At all locations within public spaces, a proposed building must not increase the number of hours that the mean hourly wind speed equals or exceeds 2.5 m/s by more than 480 hours per year compared to the existing wind environment.
4. The overall impact of a proposed building, considering all locations within public spaces and their associated uses, on the annual change in the number of hours that the mean hourly wind speed equals or exceeds 2.5 m/s must be neutral or beneficial.
5. Comfort: The comfort criteria only apply to the public spaces listed in Appendix Wind 1 – Central Commercial Additional Wind Protection. At all locations in public places shown in that appendix, a proposed building must:
6. Maintain or improve the existing wind conditions if the mean hourly wind speed equals or exceeds 2.5 m/s for more than 1,700 hours each year, or
7. Limit the number of hours that the mean hourly wind speed equals or exceeds 2.5 m/s to 1,700 hours each year if the existing wind conditions have mean hourly wind speeds of 2.5 m/s equalled or exceeded for less than 1,700 hours each year.
8. A wind report demonstrating compliance with Standards 14C2.1.3 (a)-(c) must be prepared in accordance with the requirements outlined in Appendix Wind 2 – Wind Reports.

AMENDMENT 450 - Add new Rule 2.2(a)

14M 2.2 Discretionary Activities

1. Any activity provided for in this chapter as a restricted discretionary activity that does not comply with the relevant restricted discretionary activity standards.

AMENDMENT 451 - Add new section 14M Appendices

14M Appendices

AMENDMENT 452 - Add new Appendix Wind 1 - Central Commercial Additional Wind Protection

Appendix Wind 1 ­ Central Commercial Additional Wind Protection

Diagram, engineering drawing

Description automatically generated

AMENDMENT 453 - Add new Appendix Wind 2 – Wind Reports

Appendix Wind 2 ­ Wind Reports

Buildings and structures covered by this chapter require a wind assessment report to identify and describe measures for addressing the potential adverse of wind on public space, including streets. The report may be either quantitative or qualitative, as described below.

A quantitative wind assessment should be used:

* for new buildings and structures over 22 metres in height, or
* for alterations and additions to existing buildings and structures that both:
  + increase their height by over 5 metres over their existing height, and
  + result in a total height over 22 metres

A qualitative wind assessment should be used for situations that do not meet the thresholds that necessitate a quantitative wind assessment.

A wind report may also be required for the removal or alteration of wind mitigation measures from an existing resource consent. That resource consent should be consulted to determine whether a quantitative or qualitative assessment is required.

Quantitative Wind Assessment

A quantitative assessment is based on the results of wind tunnel testing, or a suitable equivalent (e.g. computational fluid dynamics software calibrated against measured data). It should quantify the extent and magnitude of the effect of the building on the surrounding pedestrian level wind environment by measuring and comparing the wind conditions of the existing site with those of the proposed building.

The assessment should document to what degree the building complies with the performance standards in 14M 2.1.3. It should also cover the topics of a qualitative wind assessment.

Qualitative Wind Assessment

A qualitative assessment is not based on the results of a wind tunnel test or computer modelling, and relies on the professional knowledge of a suitably qualified and experienced person, and any available evidence of local wind conditions.

The assessment should include the following:

* A description of existing wind conditions, including sources and limitations of information used. Results from any previous relevant quantitative assessment should be used when available.
* A description of the interaction of existing buildings with the wind that leads to the existing wind conditions.
* A review of the proposed development and its appropriateness for the wind environment in which it sits.
* Location of the proposed development relative to important nearby public spaces.
* A description of the influence of the proposed development on the surrounding pedestrian level wind environment.
* To what degree existing wind conditions may deteriorate with the proposed development.
* A description of proposed wind mitigation measures.
* The likelihood that the development will meet, or to what degree it will not meet, the performance standards in section 14M 2.1.3.
* The rationale behind the design of the building and any proposed wind mitigation measures that support it being the best practical way to achieve the performance standards in section 14M 2.1.3.