



Wind Study Terms of Reference

Urban Design Unit
City Planning



Edmonton

What We Heard CR_7702 Attachment 3

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Project Overview

Wind plays an important role in our comfort in outdoor spaces. The force of wind on any given day, along with temperature, humidity, air quality and more, can have an effect on how much we enjoy being outside.

Currently, the City of Edmonton Zoning Bylaw gives development officers the ability to require wind statements and studies for building proposals over 20 metres in height. Development officers can also require measures they think are necessary to mitigate, or lessen, the impact of wind to ensure pedestrian comfort. That bylaw says that any wind study has to be prepared by a qualified professional engineer.

In October 2019, City Council's Urban Planning Committee passed a motion for the City's administration to provide a report on terms of reference for wind studies including testing and comfort criteria.

Stakeholder Engagement Overview

Targeted industry stakeholders were engaged on the initial draft of the Wind Study Terms of Reference Background Report submitted by RWDI on March 10, 2020. Some of the specific stakeholder groups and members of industry that were targeted included:

- Acton Oshry Architects
- Alberta Association of Architects
- Alberta Association of Landscape Architects
- Association of Professional Engineers and Geoscientists of Alberta
- Alberta Professional Planners Institute
- Canadian Homebuilders Association - Edmonton Region
- Der Architects
- DIALOG
- GEC Architecture
- HCMA Architecture + Design
- IBI Group
- Infill Development in Edmonton Association
- NAIOP Edmonton

- NEXT Architecture
- NORR Architecture, Engineering, Planning and Interior Design
- S2 Architectural and Interior Design
- Stantec Inc
- Urban Development Institute - Edmonton Region

The list of stakeholders that were targeted was determined by the volume of applications submitted to the City for developments that would be impacted by the terms of reference. Generally, the type of developments were tall buildings located in, or in immediately adjacent neighbourhoods next to the downtown core. A meeting was held with Urban Development Institute - Edmonton Region on July 14, 2020.

Administration also conducted general public engagement online through a public webpage, access to the draft terms of reference, and a Google Form to provide feedback. The period to submit feedback was from June 22, 2020 to July 10, 2020. The engagement was advertised through social media, various professional bodies' newsletters and various industry advocacy bodies.

What We Heard & What We Did

Feedback Summary

The stakeholders that responded were generally in support of the draft with recurring concerns that had a tendency to focus on costs and timing. The following is a summary of recurring themes contained within the feedback as well as Administration's response written in *italics*.

External Feedback

The stakeholders that responded were generally in support of the draft with specific recurring concerns which are outlined below.

Feedback Summary & Administration Responses

- The impact on the decision making process of the wind studies must be clearly defined
 - *The Terms of Reference will provide guidance on the triggers for, and the contents of a wind impact study / statement. The wind study will act as a decision informing tool that serves as one*

- factor of consideration during the land development application (rezoning) review process.*
- *For applications that are at the development permit stage in a majority of standard (non-direct control) zones, the findings of a wind impact statement / study will act as a decision informing tool, and at this time is not contemplated to have a direct material impact on the decision making process (i.e. will not be an explicit regulation in the Zoning Bylaw, by which an application could be refused for non-compliance, beyond submission requirements).*
 - *In situations where a proposed development is fully complying with the Zoning Bylaw (i.e. "Class A") in a standard (non-direct control) zone, the Development Officer remains obligated to approve the development, notwithstanding the findings of the wind impact statement/study.*
- Concerns exist with the difference in cost between a tabletop study and a comprehensive wind tunnel assessment
 - *The Terms of Reference will be drafted in a way that prescribes different categories of studies required, that is commensurate of the potential impact via the height triggers. At this time a quantitative wind impact study (i.e. wind tunnel assessment) would only be triggered in situations where the development exceeds 60m in height AND is recommended to be completed by the consultant through an initial CFD study. For developments 40m in height or greater, the most detailed assessment required 'up front' would be a qualitative wind impact study (computational fluid dynamics model). Nothing will preclude an applicant from submitting a quantitative wind impact study (wind tunnel model). This is in line with current practice and is now being formalized via the terms of reference*
 - Pre-occupancy confirmation in some form is a good idea as there is no existing method to verify the implementation of mitigation strategies outlined in the report
 - *All references to pre-occupancy inspections will be removed from the finalized draft. The City will reevaluate this as a formal*

requirement at a future time. The building permit process already involves a check from the Development Officer to verify construction drawings match what was approved for Development Permit

- Pre-application as outlined in the flowchart is redundant
 - *All references to pre-application will be removed from the finalized draft.*
- Guidelines for a range of building types and locations is desirable
 - *The finalized draft will provide a set of guidelines that can assist applicants in the development of mitigation strategies for a range of building types. These guidelines will be suggested strategies for wind mitigation impact. They will not be explicit regulations.*
- Computational Fluid Dynamic analyses are preferred for cost reasons
 - *Guidance around when a physical model versus a virtual model is required will be outlined in the terms of reference, and will be in line with current practice. The requirement for a physical wind tunnel model becoming mandatory 'up front' is not contemplated at this time and may be reevaluated in the future*
- There is a risk that a consultant will have a tendency to bias a report in the favour of their client
 - *The Terms of Reference will provide a consistent baseline for acceptable conditions in relation to what a space will be used for. While the stated risk may exist, the terms will also provide guidance around the qualifications of a consultant submitting a wind study.*
- Public art may need to be a consideration as some are substantial in size and can have a material impact on wind
 - *The Terms of Reference will contain provisions to ensure that any structures or objects beyond a certain size that can have a material impact on wind conditions are contained within a model*

- Snow implications on ROWs and fire access lanes should be considered as part of this document
 - *At this time it was determined that snow conditions are out of scope for the purposes of the Wind Studies Terms of Reference*
- The City should develop a city-wide 3D model to act as the base for any wind study analyses as it is difficult for the City to verify the accuracy of the report
 - *Administration acknowledges that this would be a useful tool to have available. However, at this time it was determined a city-wide 3D model is out of scope for the purposes of the Wind Studies Terms of Reference.*
- The 350m radius around the site should be looked as a figure that is discretionary and/or flexible
 - *The 350m radius serves as a minimum baseline that would be required in all situations where a wind study is required. Situations may arise where the radius may increase if in the expert opinion of the consultant, structures outside the radius would be impacted, or have an impact, on the subject application*
- If at Land Development Application (i.e. rezoning) stage, a desktop study is clear that there will be no issues, then a more in-depth analysis should not be triggered as a requirement at Development Permit stage
 - *This suggestion will be considered to be included into the finalized draft of the Terms of Reference*
- Costs associated with third party review
 - *At this time, all references to a third party review of a submitted wind study have been removed*

Internal Feedback: Planning Coordination & Development Approvals

Planning Coordination is responsible for current planning applications within the City of Edmonton up to, but not including development permitting. Specifically, the unit deals with rezoning, subdivision, road closures, and statutory plan amendments.

Development approvals is responsible for current planning applications within the City of Edmonton's development permitting process. The unit reviews permit applications against the Zoning Bylaw and renders a decision to either approve or refuse a decision. If approved, the application is moved to the building permit process.

Feedback Summary & Responses

- A wind impact statement should continue to be an initial requirement in all cases where the requirement is triggered with the potential to ask for more detailed studies downstream
 - *This suggestion is in line with external feedback and will be incorporated into the finalized draft of the terms of reference*
- Wind impact statements should be eliminated from the development permit approvals process (downstream process) entirely as they typically do not provide much detail and are difficult to obtain so late in the planning process
 - *These concerns are acknowledged, however with the adoption of the new City Plan and the ongoing development of the Zoning Bylaw Renewal, standard (non-Direct Control) zones will play a larger role in the development of Edmonton. The requirement for wind studies at the development permit stage will be even more critical as the number of Direct Control zones are reduced*
- The qualifications of the author(s) of the report are critical to ensuring the City's ability to trust and rely on it, and must be crystal clear
 - *A template declaration has been provided by RWDI outlining the qualifications of the author(s) of any wind study or report and will be included in the finalized Terms of Reference*
- Pre-occupation inspection after the development is built might be too late in the process and instead should be done during the design development stage during the development permit process and prior to the issuance of building permit
 - *All references to pre-occupancy inspection will be removed in the finalized draft of the Wind Studies Terms of Reference*

- There should be clarity what type of report is required and which specific stage in the planning process (i.e. *this* report is for *that* stage)
 - *An user friendly table will be included in the finalized draft of the terms of reference outlining and clarifying when and what is required as it pertains to wind studies*
- The flow chart is cumbersome - a matrix may be more effective
 - *The flow chart will be removed and replaced with a table in the finalized draft of the terms of reference*
- Clarity around incidents where the development officer must handle the entire wind study process (i.e. in standard zones with no rezone required)
 - *The finalized draft of the terms of reference will provide guidance around this process*

What Comes Next

- Administration is scheduled to bring forth an update report for the terms of reference to Urban Planning Committee on December 1, 2020 with the recommendation that it be received for information
- Administration will develop a finalized Wind Studies Terms of Reference document by end of Q1 2021 and have it be available on the City's website
- Administration will bring forth Zoning Bylaw amendments to a future City Council Public Hearing to have the Wind Study Terms of Reference come into effect