The Boundary Layer Wind Tunnel Laboratory



Pedestrian Level Wind Study

785 Gordon Street, Guelph, Ontario

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MAIN FINDINGS

This report describes the pedestrian-level wind study performed at The Boundary Layer Wind Tunnel Laboratory for the development at 785 Gordon Street, Guelph. A detailed discussion of the results is contained in Section 3.5. A description of the criteria used can be found in Section 3.4.

Tests were carried out for two configurations as follows:

- Existing Site the existing site contains a two storey Days Inn hotel building.
- <u>Proposed Site</u> includes the removal of the existing building and the addition of the proposed 785 Gordon Street development. The proposed development includes a single 10 storey 30m tall residential building.

Each configuration is described in more detail at the beginning of Section 3.5. Images of the tested configurations are shown in Figure 5.

Figure 9 indicates the 56 Locations at which wind speeds were measured.

The evaluation for safety and comfort results for both tested configurations are summarized schematically in Figures 10 and 11, respectively. These summarize the suitability of each measurement location with respect to pedestrian-level safety and comfort. The comfort and safety categories used correspond to those summarized in section 3.4.

Colour-coded diagrams further summarize the suitability of each measurement location with respect to pedestrian-level safety and pedestrian comfort for each tested configuration. Figures 12 and 13 present these for safety considerations for the existing and proposed configurations, respectively. For comfort considerations these are presented in Figures 14a through 14d for the spring through winter seasons, for the existing configuration, respectively. Correspondingly, the proposed configuration seasonal comfort results can be found in Figures 15a through 15d. The comfort and safety categories used in these figures correspond to those summarized in section 3.4.

The introduction of a high-rise building development in a relatively suburban environment will invariably create local wind speed-ups for some wind directions. With that expectation, the focus is to identify and develop strategies to make wind conditions suitable for the intended usage for the affected area. For example, entry areas should have a comfort category consistent with standing activities, while sidewalks should meet the condition of being comfortable for walking.

Existing Site

The immediate site surroundings are consistent with a typical suburban area, dominated by 1-2 storey residential buildings and sparsely distributed commercial complexes and open park areas. Beyond the immediate site the region is largely characterized by typical suburban exposure for all directions. An aerial view of the existing site can be seen in Figure 2. Given the suburban surroundings, it is not surprising that the measured wind speeds for the existing site and nearby areas are consistent with or marginally greater than a typical suburban environment, while generally less windy than a typical open country exposure.

For the existing configuration, all tested locations meet the recommended safety criterion.

With respect to comfort, the results indicate that during summer and autumn seasons most tested locations are suitable for either standing or sitting. During spring and winter months, most location remain suited for standing activities. During spring and especially winter seasons, most locations remain suited for standing activities, while a few locations are suitable for leisurely walking. In general, the comfort at all tested locations is suitable for intended usages.



Influence of Proposed Development

The proposed development was tested without any on-site or off-site landscaping and and thus expected to be somewhat conservative.

With respect to pedestrian safety, all tested locations meet the recommended criterion.

With respect to comfort, the influence of the proposed development to the wind speeds at adjacent properties is minimal in comparison to the existing condition. Wind speeds at a few locations are seen to increase marginally, while others are seemed to improve marginally in the presence of the proposed development. Nonetheless, the categorization generally remains unchanged. The influence of the development to local wind speeds generally diminishes with distance from it.

With respect to comfort levels at on-site areas and immediate adjacent sidewalks, there are some observed areas of local wind acceleration. Specifically, during the winter and spring seasons sidewalk Locations 4, 5, 6, 7, and 9, along Harvard and Gordon Streets immediately adjacent to the proposed development, see the comfort category change from standing to leisurely walking. Nonetheless, this remains consistent and suitable for sidewalk usage. In the presence of the proposed development, Location 8 at the Harvard and Gordon Street south corner (building's north corner) is suitable for fast walking in the spring and winter and as such will require mitigation to improve the comfort level to leisurely walking or better during these seasons to be suited for sidewalks - without mitigation the winds in this area are likely to be uncomfortable for use as an open plaza where people may wish to linger. Onsite Location 3 to the north of the development is suitable for standing during the summer months and leisurely walking during the other seasons. As this is located near an entry, mitigation should be considered to improve winds in this area to be suited for standing or better year-round. Locations 19 and 21 to the southwest side of the development are rated suitable for standing in the summer and leisurely walking in the other seasons; this is consistent with the intended usage for the area. The amenity park area around the east corner of the proposed building (area around Locations 10, 11, 12) is expected to remain suited for standing activities throughout the year. Other adjacent and onsite Locations either see minimal change or an improvement in comfort class. Note that the inclusion of on-site landscaping is expected to improve wind comfort conditions around the site.

Summary of Effects of Proposed Development and Mitigation

The inclusion of the proposed development is seen to cause some localized increases to wind speed in the immediate vicinity, and especially areas adjacent to Harvard and Gordon Streets. Other areas around the development see minor increases in wind speeds, however these areas remain suitable for their intended usage. Areas further from the site are largely unaffected by the development. With consideration to the intended usage for the different areas, Location 8 at the south corner of Harvard and Gordon Street intersection, is identified as one area expected to require some mitigation. Location 3 near the north building corner is near an entry and may require some modest mitigation to improve it to be suited for standing or better year-round. Other main entry areas (Locations 2, 13, 15) are all expected to be suited for the intended usage year-round.

The inclusion of landscaping along the north side of the development is expected to improve the winds in this area, as well as local sidewalk areas along Harvard Street and Gordon Street in general. Existing landscaping along the north of Harvard Street and west of Gordon Street, which were not included in the testing, would also be expected to have beneficial effects in impeding common winds westerly winds that affect these sidewalk areas.

The inclusion of two corridors of trees and planters along both Harvard and Gordon Streets, as illustrated in the Preliminary Landscape Plan shown in Appendix C, will offer benefit to the winds at the north building corner. Ideally, these trees should be conifers to be most effective on a year-round basis. The effects of the landscape can be investigated if quantifiable results are required.

1 THE WIND CLIMATE FOR THE GUELPH REGION

1.1 Meteorological Data

The Integrated Surface Data (ISD) records are maintained by the National Climatic Data Center (NCDC), and provide a climatological database of approximately 20,000 stations around the world. The ISD contains many meteorological variables, typically recorded at intervals of 1 hour. An analysis of historical wind data from the Region of Waterloo International Airport (ISD Station 713680) was performed to develop a statistical wind climate for the Guelph region. The historical data consists of the time period 1976 – 2017.

Based on the analysis of hourly wind records a probability distribution of wind speed and wind direction is developed and referred to as the Parent Wind Climate model. This model predicts hourly mean wind speeds at 10 m, corrected for standard open country exposure, of 20.9 m/s and 23 m/s for return periods of 10 years and 50 years, respectively.

1.2 Statistical Wind Climate Model

For the analysis of the wind tunnel data, the wind climate model is converted to a reference height of 500 m using a standard open country exposure profile. The Parent Wind Climate provides a good representation of short return period winds (return periods of 1 week to 1 year) and is used in the prediction of pedestrian-level wind speeds. The predicted hourly mean wind speeds at 10m and 500m heights are listed below for various return periods. Wind speeds at a 500m height corresponding to the Parent Wind Climate model are plotted in Figure 2 for various return periods.

	Hourly Mean Wind Speeds (km/h)							
Return Period	10 m	500 m						
1 Week	38.5	70.9						
1 Month	48.6	89.3						
1 Year	63.4	115.9						

The directional characteristics of winds associated with various return periods are plotted in terms of Relative Importance (%) in Figures 3a and 3b. The wind climate model indicates that for design-level return periods, southwesterly winds are the most important.

The design probability distribution of hourly mean wind speed at 500m reference height and wind direction is shown in Appendix A. Annual and seasonal distributions are shown.

2 THE MODELLING OF THE SITE AND THE WIND

2.1 Overall Approach

The basic tool used is the Laboratory's boundary layer wind tunnel. The tunnel is designed with a very long test section, which allows extended models of upwind terrain to be placed in front of the model of the building under test. The modelling is done in more detail close to the site. The wind flow then develops characteristics which are similar to the wind over the terrain approaching the actual site. This methodology has been highly developed (see References 2 and 3) and is detailed below.

2.2 Model Design

Close-up views of the 1:400 scale model for the 785 Gordon Street development are shown in Figure 4. Two configurations were tested, namely the Existing and Proposed Configurations.

- The Existing Configuration consists of the on-site Days Inn and current existing buildings within a 480m radius of this site; an aerial view of the existing site is provided in Figure 2.
- The Proposed Configuration includes the removal of the existing two storey hotel and the addition of the proposed 785 Gordon Street development. The proposed development includes a single 10 storey residential building. A plan view of the proposed development can be seen in Figure 1.

Test Components:

- 1. The site model, built in detail.
- 2. A detailed proximity model of the surrounding city built in block outline from Styrofoam for a radius of approximately 480 m.
- 3. Generic models of upstream terrain; see below.

The building model and the proximity model are rotated to simulate different wind directions with the upstream terrain being changed as appropriate .

The upstream terrain was modelled using generic roughness blocks and turbulence-generating spires to produce wind characteristics representative of those at the project site. Two different terrain models were used, these are shown in Figure 6 and the azimuth ranges over which they were used are shown in Figure 7.

2.3 Characteristics of the Modelled Wind

Figure 8 presents the vertical profile of the mean speed and of the intensity of the longitudinal component of turbulence, measured just upstream of the centre of the turntable, for the upstream terrain exposure.

The model profile is a good representation of the expected variation of full-scale wind speed and turbulence over relevant heights. The reference wind speed measured in the wind tunnel has been scaled such that the expected full-scale wind speeds over the lower 50m are achieved.

3 THE DETERMINATION OF PEDESTRIAN-LEVEL WIND SPEEDS

3.1 Overall Approach

Detailed measurements were made of pedestrian-level wind speeds at locations of interest around the project. Views of the model in the wind tunnel are shown in Figure 5 for each of the tested configurations. These wind-tunnel findings were then combined with the extratropical wind climate to provide statistical predictions of expected pedestrian-level wind speeds around the site.

Assessment for pedestrian safety is based on the mean wind speed predicted to be exceeded once a year. Assessment for pedestrian comfort is based on the mean wind speed predicted to be exceeded 5% of the time.

General descriptions of the testing and analysis procedure are given in Reference 1.

3.2 Model Instrumentation

Figure 8 indicates the 56 locations at which speeds were measured. Locations 1, 2 and 3 are located in the landscaped area directly to the north of the proposed development. These Locations are found only in the proposed configuration.

Locations were placed along the sidewalk areas around the development and adjacent properties, on proposed pedestrian traffic routes and near proposed entryways of the proposed development.

Measurements were made using omni-directional pressure sensors which measure both mean and fluctuating components of the wind speed parallel to the ground at a height of about 1.5 to 2m in full scale.

3.3 Aerodynamic Data

Measurements were taken at 10° intervals for the full range of azimuths.

The polar plots in Appendix B show the wind speed at each of the sensors, expressed as a ratio of the mean wind speed at reference height. The angular coordinate gives the direction of the approach wind, relative to true North.

The radial magnitudes and the shapes of the polar plots in Appendix B provide valuable indications of the relative magnitudes of wind speeds at different locations and their sensitivity to the direction of the approach wind.

These plots can be useful to identify important wind directions that can influence conditions at a particular location. In turn, this information can be used to develop mitigation strategies.

3.4 Statistical Prediction of Pedestrian-Level Winds

The directional characteristics of the extratropical wind climate are shown in Figure 3.

The predicted wind speeds are obtained by combining the statistical wind climate model of wind speed and direction with the aerodynamic data measured in the wind tunnel. Two types of prediction are provided:

- 1. Wind speeds exceeded during 5% of the time on an annual basis.
- 2. Wind speeds exceeded once per year.

Criteria for pedestrian comfort and safety, for temperate climates are as follows:

CRITERIA	DESCRIPTION	MEAN WIND SPEED		
		EXCEEDED 5% OF		
		THE TIME		
Comfort level 4	Standing, Sitting - long exposure	14 km/h		
Comfort level 3	Standing, Sitting - short exposure	22 km/h		
Comfort level 2	Leisurely Walking	29 km/h		
Comfort level 1	Fast Walking	36 km/h		

CRITERIA	DESCRIPTION	MEAN WIND SPEED EXCEEDED ONCE PER YEAR
Safety level 2	All-Weather Areas	54 km/h
Safety level 1	Fair-Weather Areas	72 km/h

The comfort categories can be basically described as follows:

- Comfort Level 4 (C4) Standing, Sitting for long exposure: Wind felt on faces, leaves rustle slightly. Suitable for promenades, outdoor restaurants, or park benches where people may linger for long periods to eat, relax, or read a newspaper.
- **Comfort Level 3 (C3) Standing, Sitting for short exposure:** Leaves and small twigs in constant motion; wind extends light flags. These winds are comfortable for building entrances or bus stops where people are likely to linger for a short time.
- Comfort Level 2 (C2) Leisurely Walking: Raises dust and loose paper; small branches are moved. Wind speeds experienced are appropriate for activities which involve slow walking such as a leisurely stroll or window shopping.
- Comfort Level 1 (C1) Fast Walking: Small trees in leaf begin to sway; can cause movement to hair and loose clothing. Areas experiencing these winds would be appropriate for sidewalks, parks, or playing fields where people are active with little notice of moderate wind activity and unlikely to be in one location very long.
- Areas which exceed Comfort Level 1 wind speeds (C1+) could experience winds that are felt as a force on the body, cause large branches or whole trees to sway, or perhaps be an inconvenience to walking.

The safety categories are established to recognize that strong winds may cause a loss of balance or the toppling of an infirm or elderly person. More stringent safety requirements are recommended for essential areas which are expected to be used in all weather conditions. The following gives a description of the levels for evaluating safety:

- All-weather areas (S2): areas that need to be used in all weather conditions, such as building entrances, sidewalks, etc.
- **Fair-weather areas (S1):** areas that are not used or can be closed in severe weather, such as park benches, lookout points, etc.
- Areas which exceed Safety Level 1 (S1+) are considered to pose a serious hazard and are undesirable regardless of activity.

These criteria reflect the findings of many pedestrian wind studies at The Boundary Layer Wind Tunnel Laboratory. These criteria were first published by Kapoor et al (Reference 4).

3.5 Tests Results and Discussion

Figure 10 compares the predicted wind speeds at the various locations for both configurations with the criteria for pedestrian <u>safety</u>. Similar plots of predicted wind speeds compared to the criteria for pedestrian <u>comfort</u> can be found in Figures 11a to 11d for spring, summer, autumn, and winter seasons, respectively. Results are discussed below for each of the tested configurations.

Colour-coded diagrams are also used to summarize the suitability of each measurement location with respect to pedestrian-level safety and pedestrian comfort for each tested configuration. Figures 12a and 12b presents these for safety considerations. For comfort considerations these are presented in Figures 13a, 13b, 13c and 13d for the Existing Configuration for the spring, summer, autumn, and winter seasons, respectively. Similarly, Figures 14a, 14b, 14c and 14d present these data for the Proposed configuration. The comfort and safety categories used in these figures correspond to those summarized in the tables above (section 3.4).

The tested configurations are as follows:

- <u>Existing Site</u> - the existing site conditions contains a two storey hotel building. The immediate surroundings around the site contain a mixture of 1-2 storey residential buildings and sparsely distributed commercial complexes amid open park areas, consistent with a suburban exposure.
- 2. <u>Proposed</u> the existing hotel building is removed, and the proposed 785 Gordon Street development is added. The proposed development includes a single 10 storey 30m tall residential building. Landscaping is not included; this would often reflect a conservative representation and allow an understanding of flow patterns around the development permitting an assessment of how to best mitigate uncomfortable or unsafe winds, if an issue.

3.5.1 Existing Site Configuration

Results for this configuration reflect current wind conditions at the 785 Gordon Street site. This configuration is referred to as the 'Existing Site'.

With respect to pedestrian safety:

1. All tested locations meet the recommendations for pedestrian safety.

With respect to pedestrian comfort:

- 1. Most tested locations are generally suited for standing or sitting activities during all seasons.
- 2. A few locations are suitable for leisurely walking during the winter months.

As expected, and given the sites suburban surroundings, the measured wind speeds for the existing site are consistent with or marginally greater than that experienced in a typical suburban environment, while somehwat less windy than a typical open country exposure.

3.5.2 Proposed Development Configuration

Tests of the proposed development were carried out with the proposed 785 Gordon Street building in place and without landscaping. The addition of any proposed on-site landscaping can be expected to improve wind comfort and safety conditions.

With respect to pedestrian safety:

1. All tested locations meet the criteria for pedestrian safety.

With respect to pedestrian comfort:

 With respect to comfort, the influence of the proposed development to the wind speeds at adjacent properties is minimal in comparison to the existing condition. Wind speeds at a few locations are seen to increase marginally, while others are seemed to improve marginally in the presence of the proposed development. Nonetheless, the categorization largely remains unchanged. The influence of the development to local wind speeds generally diminishes with distance from it.

- 2. At the adjacent sidewalks directly to the north and east of the site, there are some observed areas of local wind acceleration. Specifically, during the winter and spring seasons sidewalk Locations 4, 5, 6, 7, and 9 along Harvard and Gordon Streets immediately adjacent to the proposed development, see the comfort category change from standing to leisurely walking. Nonetheless, these areas remain consistent and suitable for sidewalk usage.
- 3. Location 8 at the south corner of the Harvard and Gordon Street intersection, at the north building corner, is suitable for fast walking in the spring and winter. Consequently, this area will require mitigation to improve the comfort to leisurely walking during these seasons to be consistent with sidewalk usage. This area is comfortable for sidewalk usage in summer and autumn seasons. Without mitigation, the winds in this area are likely to be uncomfortable if it is to be used as an open plaza where people may linger. The increased winds at the north building corner are largely influenced by WNW wind directions, and to a lesser extent by NE winds. From these directions, the winds hit the respective face of the building and are down-washed and streamed along the street levels; this effect is accentuated near the building corners.
- 4. All other locations on the sidewalks along Gordon Street and Harvard Street and the other adjacent roadways are suitable for sitting or standing during the summer months. These locations can be expected to be suitable for standing activities during the winter months with the exception of Location 47, which is suited for leisurely walking and unchanged from the existing configuration.
- 5. Locations near building exits are comfortable for standing during the winter months, and thus suited for their intended usage. Locations near building corners are marginally windier and suited for walking activities in the winter months. Many of these areas are comfortable for standing activities in the summer.
- 6. Onsite Location 3 to the north of the development is suitable for standing during the summer months and leisurely walking during the other seasons. As this is located near an entry, mitigation would be required to improve winds in this area to be suited for standing or better year-round.
- 7. Locations 19 and 21 to the southwest of the development are rated suitable for leisurely walking in the winter and springtime, which remains consistent with sidewalk / parking lot usage. Compared to the existing conditions, measurements for these locations reflect an increase in wind speed for some wind directions. The comfort in these areas could be improved with the introduction of wind breaks, such as evergreen trees along the west and north side of the site. Nonetheless, they are deemed suitable for their intended usage.
- 8. The amenity park area around the east corner of the proposed building (area around Locations 10, 11, 12) is expected to remain suited for short sitting or standing activities throughout the year.
- 9. With respect to all other tested locations, these are expected to be suitable for the intended usage.

Note that the inclusion of on-site landscaping is expected to improve wind comfort conditions around the site.

3.6 Seasonal Differences

The amount and type of activity for a given location can vary by season. For example, an outdoor amenity area may have limited or restricted usage during the winter season. Thus, in some cases it is valuable to look at the wind speeds and the corresponding classification of pedestrian comfort on a more detailed season-by-season basis. Table 1 (existing configuration) and Table 2 (proposed configuration) present wind comfort class for each tested location for each of the four seasons, as

well as on an annual basis. These are consistent with the colour-coded diagrams of seasonal comfort in Figures 14 and 15.

In general, compared to annual wind speeds, wind speeds during the winter and spring months are about 10% and 5% higher respectively and in the summer and autumn they are about 20% and 5% lower respectively.

3.7 Summary Remarks

General Overview

The proposed development can be expected to cause increased winds locally. This is typical with the introduction of a taller building development within a relatively homogeneous building terrain. This is most noticeable on the adjacent sidewalk to the north of the building. The local speed-ups are most influenced by common westerly wind directions.

With the expectation of increased local winds, the focus should not be to return wind conditions to an 'as-it-was' state, but rather identify and develop strategies to make wind conditions suitable for the intended usage. For example, entry areas should have a comfort category consistent with standing activities, while sidewalks should meet the condition of being comfortable for walking.

Influence of Proposed Development

The inclusion of the proposed development is seen to cause some localized increases to wind speed in the immediate vicinity, and especially areas adjacent to Harvard and Gordon Streets. Other areas around the development see minor increases in wind speeds, however these areas generally remain suitable for their intended usage. Areas further from the site are largely unaffected by the development.

With consideration to the intended usage for the different areas, Location 8 at the south corner of Harvard and Gordon Street intersection, is identified as the only area expected to require some mitigation. Though other areas would also benefit from expanded landscaping around the site.

Mitigation Strategies

The inclusion of landscaping adjacent to the north side of the development is expected to improve the winds in this area, as well as at adjacent sidewalk areas along Harvard Street and Gordon Street. Existing landscaping along the north side of Harvard Street and west of Gordon Street, which were not included in the testing, would also be expected to have beneficial effects in impeding common westerly winds that affect this general sidewalk area.

The inclusion of two corridors of trees and planters along both Harvard and Gordon Streets, as illustrated in the Preliminary Landscape Plan shown in Appendix C, will offer benefit to the winds at the north building corner. Ideally, these trees should be conifers to be most effective on a year-round basis. The effects of the landscape should be further investigated if quantifiable results are required.

Other areas have been identified as having an increase in local wind speeds compared to the existing configuration. Those areas are expected to be suitable for the intended usage without mitigation, however the inclusion of interspersed coniferous plantings along the west and north sides of the development will be effective in further improving the local wind conditions.

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PEDESTRIAN WIND COMFORT CLASSES FOR EXISTING TABLE 1 SITE – SEASONAL

Location Season Class Sultable Usage Location Season Class Sultable Usage Annual	Probe	Casara	Comfort	Cuitable Users		Probe	C	Comfort	Cuitable Llesse
Annual Annual C3 Standing Spring C3 Standing Autumn C4 Sitting Autumn C3 Standing Writer C3 Standing Annual C3 Standing Annual C3 Standing Spring C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Annual C3 <t< td=""><td>Location</td><td>Season</td><td>Class</td><td>Suitable Usage</td><td></td><td>Location</td><td>Season</td><td>Class</td><td>Suitable Usage</td></t<>	Location	Season	Class	Suitable Usage		Location	Season	Class	Suitable Usage
Spring Spring Gas Standing 1 Summer C4 Sitting Autumn Minter C3 Standing Winter C3 Standing Spring Summer C3 Standing Spring Summer C3 Standing Autumn C3 Standing Summer C3 Standing Autumn C3 Standing Summer C3 Standing Autumn C3 Standing Winter C3 Standing Annual C3 Standing Winter C3 Standing Autumn C3 Standing Munun C3 Standing Autumn C3 Standing Munun C3		Annual					Annual	C3	Standing
1 Summer		Spring					Spring	C3	Standing
Autumn Autumn C3 Standing Winter Autumn C3 Standing Spring Sommer Annual C3 Standing Autumn Autumn C3 Standing Autumn Autumn C3 Standing Autumn Autumn C3 Standing Winter Autumn C3 Standing Winter Autumn C3 Standing Spring Summer Annual C3 Standing Spring C3 Standing Spring C3 Standing Minter Minter C3 Standing Summer C3 Standing Autumn C3 Standing Winter C3 Standing Autumn C3 Standing Winter C3 Standing Spring C3 Standing Winter C3 Standing Mutum C3 Standing Winter C3 Standing	1	Summer				11	Summer	C4	Sitting
Winter Winter C3 Standing Annual Annual Annual C3 Standing 2 Summer Annual C3 Standing Autumn Minter Minter C3 Standing Autumn Minter Winter C3 Standing Annual Minter Minter C3 Standing Annual Minter Minter C3 Standing Annual Minter Minter C3 Standing Annual C3 Standing Spring C3 Standing Autumn C3 Standing Minter C3 Standing Minter C3 Standing Minter C3 Standing Minter C3 Standing Minter C3 Standing Mutum C3 Standing Minter C3 Standing Mutum C3 Standing Minter C3 Standing Mutu		Autumn					Autumn	C3	Standing
Annual Annual Annual C3 Standing 2 Spring C3 Standing Spring C3 Standing Autumn Autumn C3 Standing Winter C3 Standing 3 Spring C3 Standing Winter C3 Standing 3 Summer Annual C3 Standing Standing 4 Mutumn C3 Standing Spring C3 Standing 4 Mutum C3 Standing Summer C4 Standing 4 Summer C4 Sitting 14 Summer C4 Sitting 4 Summer C4 Sitting 15 Summer C4 Sitting 5 Spring C3 Standing Winter C3 Standing 4 Mutum C3 Standing Mutum C3 Standing 6 Summer C4 Sitting		Winter					Winter	C3	Standing
Spring Spring Spring Standing 2 Summer C3 Standing Winter C3 Standing Winter C3 Standing Annual Spring C3 Standing Summer C3 Standing Winter C3 Standing Autumn C3 Standing Antual C3 Standing Autumn C3 Standing Autumn C3 Standing Winter Winter C3 Standing Autumn C3 Standing Minter C3 Standing Minter C3 Standing Minter C3 Standing Minter C3 Standing Summer C4 Sitting 14 Summer C4 Sitting Anual C3 Standing Minter C3 Standing Spring C3 Standing Minter C3 Standing Minter C3		Annual				12	Annual	C3	Standing
2 Summer Image: Summer		Spring					Spring	C3	Standing
Autumn Autumn C3 Standing Winter Annual C3 Standing Spring Annual C3 Standing Spring Annual C3 Standing Summer Antumn C3 Standing Winter Mutumn C3 Standing Winter Mutumn C3 Standing Mutum C3 Standing Mutum C3 Standing Minter C3 Standing Mutum C3 Standing Mutum C3 Standing Spring C3 Standing Minter C3 Standing Minter C3 Standing Spring C3 Standing Summer C4 Sitting Mutum C3 Standing Summer C4 Sitting Autum C3 Standing Spring C3 Standing Minter C3 Standing Minual C3 Standing	2	Summer					Summer	C3	Standing
Winter Winter C3 Standing Annual Annual Annual C3 Standing Summer Autumn Autumn C3 Standing Autumn C3 Standing Spring C3 Standing Autumn C3 Standing Minter C3 Standing Autumn C3 Standing Minter C3 Standing Mumer C4 Stiting 14 Summer C4 Stiting Minter C3 Standing Minter C3 Standing Mutum C3 Standing Minter C3 Standing Spring C3 Standing Muturn C3 Standing Muturn C3 Standing Muturn C3 Standing Minter C3 Standing Muturn C3 Standing Muturn C3 Standing Muturn C3 Standing Muturn C3 <td></td> <td>Autumn</td> <td></td> <td></td> <td></td> <td>Autumn</td> <td>C3</td> <td>Standing</td>		Autumn					Autumn	C3	Standing
Annual Annual C3 Standing 3 Summer C3 Standing Autumn Annual C3 Standing Autumn C3 Standing Autumn C3 Standing Annual C3 Standing Autumn C3 Standing Annual C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Mutum C3 Standing Spring C3 Standing Spring C3 Standing Minter C3 Standing Mutum C3 Standing Summer C4 Sitting 15 Summer C4 Sitting Autumn C3 Standing Mutum C3 Standing Spring C3 Standing Mutum		Winter					Winter	C3	Standing
Spring Spring C3 Standing Autumn Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing 4 Spring C3 Standing Mutum C3 Standing 4 Summer C4 Sitting 14 Summer C3 Standing 4 Annual C3 Standing Mutum C3 Standing 4 Annual C3 Standing Mutum C3 Standing 5 Spring C3 Standing Minter C3 Standing 5 Summer C4 Sitting 15 Summer C4 Sitting 4 Anual C3 Standing Mutum C3 Standing 5 Summer C4 Sitting 16 Summer C4 Sitting 6 Summer C4 Sitting 16 Summer C3 Standing <td></td> <td>Annual</td> <td></td> <td></td> <td></td> <td></td> <td>Annual</td> <td>C3</td> <td>Standing</td>		Annual					Annual	C3	Standing
3 Summer 13 Summer C3 Standing Autumn Winter Autumn C3 Standing 4 Annual C3 Standing Winter C3 Standing 4 Summer C4 Sitting 14 Summer C3 Standing 4 Summer C4 Sitting 14 Summer C3 Standing 4 Autumn C3 Standing 14 Summer C4 Sitting 5 Summer C4 Sitting 15 Annual C3 Standing 5 Summer C4 Sitting 15 Summer C4 Sitting 6 Summer C4 Sitting 16 Summer C4 Sitting 6 Summer C4 Sitting 16 Summer C3 Standing 7 Summer C3 Standing Minter C3 Standing S		Spring					Spring	C3	Standing
Autumn Autumn C3 Standing Winter	3	Summer				13	Summer	C3	Standing
Winter Winter Winter G3 Standing 4 Annual C3 Standing Spring C3 Standing 4 Summer C4 Sitting 14 Summer C4 Sitting Autumn C3 Standing Autumn C3 Standing Annual C3 Standing Autumn C3 Standing Annual C3 Standing Autumn C3 Standing Spring C3 Standing Annual C3 Standing Symmer C4 Sitting 15 Summer C4 Sitting Minter C3 Standing Mutum C3 Standing Winter C3 Standing Mutum C3 Standing Minter C3 Standing Mutum C3 Standing Spring C3 Standing Mutum C3 Standing Muturn C3 Standing <		Autumn					Autumn	C3	Standing
Annual C3 Standing Annual C3 Standing 4 Summer C4 Sitting 14 Summer C4 Sitting Autumn C3 Standing 14 Summer C4 Sitting Autumn C3 Standing Winter C3 Standing Spring C3 Standing Winter C3 Standing Spring C3 Standing Winter C3 Standing Spring C3 Standing Spring C3 Standing Mutumn C3 Standing Spring C3 Standing Winter C3 Standing Mutum C3 Standing Mutumn C3 Standing Mutum C3 Standing Spring C3 Standing Mutum C3 Standing Mutumn C3 Standing Mutum C3 Standing Mutum C3 Standing		Winter					Winter	C3	Standing
Spring C3 Standing Spring C3 Standing 4 Summer C4 Sitting 14 Summer C4 Sitting Autumn C3 Standing Winter C3 Standing Winter C3 Standing Winter C3 Standing 5 Annual C3 Standing Annual C3 Standing 5 Summer C4 Siting 15 Annual C3 Standing 6 Spring C3 Standing Winter C3 Standing 6 Spring C3 Standing Summer C4 Sitting 6 Summer C4 Sitting 16 Summer C4 Sitting 6 Summer C4 Sitting 16 Summer C3 Standing 7 Annual C3 Standing Spring C3 Standing 7 Summer C4		Annual	C3	Standing			Annual	C3	Standing
4 Summer C4 Sitting 14 Summer C4 Sitting Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Annual C3 Standing Winter C3 Standing 5 Spring C3 Standing Annual C3 Standing 6 Summer C4 Sitting 15 Summer C4 Sitting 6 Minter C3 Standing Antual C3 Standing 6 Minter C3 Standing Minter C3 Standing 6 Summer C4 Sitting 16 Summer C4 Sitting 6 Summer C4 Sitting 16 Summer C4 Sitting 7 Antuan C3 Standing Annual C3 Standing 8 Summer C4 Sitting 17 Summer C3		Spring	C3	Standing			Spring	C3	Standing
Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing Spring C3 Standing Annual C3 Standing Summer C4 Sitting 15 Summer C4 Sitting Autumn C3 Standing Summer C4 Sitting Annual C3 Standing Winter C3 Standing Annual C3 Standing Mutumn C3 Standing Minter C3 Standing Mutumn C3 Standing Spring C3 Standing Mutumn C3 Standing Mutumn C3 Standing Mutumn C3 Standing Minter C3 Standing Mutumn C3 Standing Minter C3 Standing Mutumn C3 Standing Summer C4 Sitting 17 Summer <td>4</td> <td>Summer</td> <td>C4</td> <td>Sitting</td> <td></td> <td>14</td> <td>Summer</td> <td>C4</td> <td>Sitting</td>	4	Summer	C4	Sitting		14	Summer	C4	Sitting
Winter C3 Standing Winter C3 Standing Annual C3 Standing Annual C3 Standing 5 Summer C4 Sitting 15 Spring C3 Standing 4utumn C3 Standing 15 Summer C4 Sitting Winter C3 Standing 15 Summer C4 Sitting Winter C3 Standing Mutumn C3 Standing Winter C3 Standing Mutumn C3 Standing Spring C3 Standing Mutumn C3 Standing Autumn C3 Standing Mutum C3 Standing Winter C3 Standing Mutum C3 Standing Winter C3 Standing Mutum C3 Standing Minter C3 Standing Mutum C3 Standing Spring C3 <td< td=""><td></td><td>Autumn</td><td>C3</td><td>Standing</td><td></td><td></td><td>Autumn</td><td>C3</td><td>Standing</td></td<>		Autumn	C3	Standing			Autumn	C3	Standing
Annual C3 Standing Annual C3 Standing 5 Summer C4 Sitting 15 Summer C4 Sitting Autumn C3 Standing Munun C3 Standing Autumn C3 Standing Munun C3 Standing Autumn C3 Standing Munun C3 Standing Annual C3 Standing Munun C3 Standing Spring C3 Standing Munun C3 Standing Autumn C3 Standing Munun C3 Standing Minter C3 Standing Munun C3 Standing Minter C3 Standing Munual C3 Standing Mutum C3 Standing Mutum C3 Standing Spring C3 Standing Mutum C3 Standing Mutum C3 Standing Mutum		Winter	C3	Standing			Winter	C3	Standing
Spring C3 Standing Spring C3 Standing 5 Summer C4 Sitting 15 Summer C4 Sitting Autumn C3 Standing 15 Summer C4 Sitting Autumn C3 Standing Minter C3 Standing Annual C3 Standing Winter C3 Standing Spring C3 Standing Minter C3 Standing Annual C3 Standing Spring C3 Standing Annual C3 Standing Minter C3 Standing Winter C3 Standing Minter C3 Standing Minter C3 Standing Minter C3 Standing Spring C3 Standing Minter C3 Standing Mutum C3 Standing Minter C3 Standing Mutum C3 Standing		Annual	C3	Standing		15	Annual	(3	Standing
5 Summer C4 Sitting 15 Summer C4 Sitting Autumn C3 Standing 15 Summer C4 Sitting Winter C3 Standing Winter C3 Standing Spring C3 Standing Winter C3 Standing Spring C3 Standing Spring C3 Standing Annual C3 Standing Summer C4 Sitting Autumn C3 Standing Summer C4 Sitting Minter C3 Standing Mutumn C3 Standing Winter C3 Standing Mutumn C3 Standing Summer C4 Sitting 17 Summer C3 Standing Autumn C3 Standing Mutumn C3 Standing Winter C3 Standing Mutumn C3 Standing Summer C3 <t< td=""><td></td><td>Spring</td><td>C3</td><td>Standing</td><td></td><td>Spring</td><td>(3</td><td>Standing</td></t<>		Spring	C3	Standing			Spring	(3	Standing
Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing Spring C3 Standing Autumn C3 Standing Annual C3 Standing Annual C3 Standing Autumn C3 Standing Spring C3 Standing Minter C3 Standing Spring C3 Standing Minter C3 Standing Mutum C3 Standing Minter C3 Standing Mutum C3 Standing Summer C3 Standing Mutum C3 Standing Mutum C3 Standing Mutum C3 Standing Mutum C3 Standing Mutum C3 Standing Mutum C3 Standing Mutum C3 Standing </td <td>5</td> <td>Summer</td> <td>C4</td> <td>Sitting</td> <td></td> <td>Summer</td> <td>C4</td> <td>Sitting</td>	5	Summer	C4	Sitting			Summer	C4	Sitting
WinterC3StandingWinter6AnnualC3Standing5SpringC3Standing6SummerC4Sitting16AutumnC3StandingWinterC3StandingWinterC3StandingWinterC3StandingWinterC3StandingWinterC3StandingWinterC3StandingMumerC3StandingSpringC3StandingSummerC4Sitting17SummerC4SummerC3StandingSummerC3StandingAutumnC3StandingVinterC3StandingAutumnC3StandingWinterC3StandingVinterC3StandingMinterC3StandingSummerC3StandingSpringC2Leisurely WalkingAnnualC3Standing8SummerC3SummerC3Standing9SummerC3AnnualC3Standing9SummerC3SummerC3Standing9SummerC3SummerC3Standing9SummerC3AnnualC3Standing9SummerC3SummerC3Standing1910Summer <td></td> <td>Autumn</td> <td>C3</td> <td>Standing</td> <td></td> <td>Autumn</td> <td>(3</td> <td>Standing</td>		Autumn	C3	Standing			Autumn	(3	Standing
Annual C3 Standing Annual C3 Standing 6 Spring C3 Standing Spring C3 Standing 6 Summer C4 Sitting 16 Summer C4 Sitting Autumn C3 Standing 16 Summer C4 Sitting Autumn C3 Standing 16 Summer C4 Sitting Annual C3 Standing Mutumn C3 Standing Spring C3 Standing Mutumn C3 Standing Spring C3 Standing Mutumn C3 Standing Summer C4 Sitting 17 Summer C3 Standing Mutum C3 Standing Mutumn C3 Standing Spring C3 Standing Mutum C3 Standing Mutum C3 Standing Spring C3 Standing Summer		Winter	(3	Standing			Winter	(3	Standing
SpringC3StandingStanding6SummerC4Sitting16SummerC4SittingAutumnC3Standing16SummerC4SittingWinterC3Standing16SummerC4SittingWinterC3StandingWinterC3StandingMutumnC3StandingMuturnC3StandingSpringC3Standing17SummerC3StandingAnnualC3Standing17SummerC3StandingAutumnC3Standing17SummerC3StandingMinterC3Standing17SummerC3StandingWinterC3StandingMuturnC3StandingWinterC3Standing18SummerC3StandingSpringC2Leisurely WalkingSummerC3StandingSummerC3Standing18SummerStandingAnnualC3StandingMinterC2Leisurely WalkingMutumnC3StandingMinterC2Leisurely Walking9SummerC4Sitting19SummerC3Standing9SummerC3StandingMinterC3Standing9SummerC3StandingMinterC3Standing9SummerC3StandingMinterC3Standing <td></td> <td>Annual</td> <td>C3</td> <td>Standing</td> <td></td> <td rowspan="2"></td> <td>Annual</td> <td><u> </u></td> <td>Standing</td>		Annual	C3	Standing			Annual	<u> </u>	Standing
6SummerC4Sitting16SummerC4Sitting6AutumnC3Standing16SummerC4SittingWinterC3StandingWinterC3Standing7AnnualC3StandingWinterC3Standing7SummerC4Sitting17SummerC3Standing7SummerC4Sitting17SummerC3Standing7SummerC3Standing17SummerC3Standing7AutumnC3Standing17SummerC3Standing8AnnualC2Leisurely WalkingAutumnC3Standing8SpringC2Leisurely WalkingSpringC3Standing8SummerC3Standing18SummerC3Standing9SummerC3Standing18SummerC3Standing9SummerC4Sitting19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3StandingSpringC3Standing9SummerC3Standing19SummerC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC3StandingSpringC3Standing10 <td></td> <td>Snring</td> <td>(3</td> <td>Standing</td> <td></td> <td>Spring</td> <td>(3</td> <td>Standing</td>		Snring	(3	Standing			Spring	(3	Standing
AutumnC3StandingAutumnC3StandingWinterC3StandingWinterC3StandingSpringC3StandingSummerC4SittingAutumnC3StandingAutumnC3StandingSummerC4SittingAutumnC3StandingAutumnC3StandingAutumnC3StandingAutumnC3StandingAutumnC3StandingWinterC3StandingWinterC3StandingManualC2Leisurely WalkingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingMutumnC3StandingWinterC3StandingMutumnC4SittingSummerC3StandingSpringC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3StandingSummerC3Standing	6	Summer	C4	Sitting		16	Summer	C4	Sitting
WinterC3StandingWinterC3StandingAnnualC3StandingWinterC3Standing5pringC3Standing17AnnualC3Standing7SummerC4Sitting17SummerC3StandingAutumnC3Standing17SummerC3StandingMinterC3Standing17SummerC3StandingMinterC3Standing17SummerC3StandingMinterC3Standing17SummerC3StandingWinterC3Standing17SummerC3Standing8AnnualC2Leisurely WalkingMinterC2Leisurely Walking9SummerC3Standing18SummerC3Standing9AnnualC3StandingMinterC2Leisurely Walking9SpringC3StandingMinterC2Leisurely Walking9SummerC4Sitting19SummerC3Standing9SummerC4Sitting19SummerC3Standing9MinterC3StandingMinterC3Standing9SummerC3StandingSpringC3Standing9SummerC4Sitting19SummerC3Standing10SummerC4Sitting20Sum		Autumn	(3	Standing			Autumn	(3	Standing
AnnualC3Standing7AnnualC3Standing8SpringC3Standing17SummerC4Sitting17AutumnC3Standing17AutumnC3Standing17SummerC3Standing17SummerC3Standing17SummerC3Standing17SummerC3Standing18AnnualC2Leisurely Walking18SummerC3Standing19SummerC3Standing10SummerC3Standing10SummerC3Standing10SummerC4Sitting10SummerC3Standing10SummerC3Standing10SummerC4Sitting10SummerC4Sitting10SummerC3Standing20SummerC4Sitting21AutumnC3Standing21SummerC4Sitting21SummerC3Standing21SummerC3Standing21SummerC3Standing21SummerC3Standing21SummerC3Standing22SummerC3Standing23StandingStanding24Sitting2025Standing26S		Winter	(3	Standing			Winter	(3	Standing
SpringC3StandingSpringC3Standing7SpringC3Standing17SpringC3StandingAutumnC3Standing17SummerC3StandingAutumnC3Standing17SummerC3StandingWinterC3StandingAutumnC3StandingWinterC3StandingMutumC3Standing8SpringC2Leisurely WalkingSpringC3Standing8SummerC3Standing18SummerC3Standing9SummerC3Standing18SummerC3Standing9AnnualC3StandingMutumC3Standing9SummerC4Sitting19SummerC3Standing9SummerC4Sitting19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9MinterC3StandingMinterC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing20SummerC3Standing10SummerC3Standing20SummerC4Sitting10SummerC4Sitting		Annual	C3	Standing			Annual	(3	Standing
7SummerC4Sitting17SummerC3StandingAutumnC3Standing17SummerC3StandingAutumnC3StandingAutumnC3StandingWinterC3StandingWinterC2Leisurely WalkingSpringC2Leisurely WalkingSpringC3StandingAutumnC3Standing18SummerC3StandingAutumnC3Standing18SummerC3StandingAutumnC3Standing18SummerC3StandingAutumnC3Standing18SummerC3StandingWinterC2Leisurely WalkingWinterC2Leisurely WalkingWinterC3StandingMutumnC3StandingMunualC3StandingMinterC3StandingSpringC3Standing19SummerC3Standing9SummerC4Sitting19SummerC3Standing9SummerC3StandingMinterC3Standing9SummerC3StandingMinterC3Standing9SummerC4Sitting19SummerC3Standing9SummerC3StandingMinterC3Standing9SummerC3StandingMinterC3Standing9Summer <t< td=""><td></td><td>Spring</td><td>C3</td><td>Standing</td><td></td><td></td><td>Spring</td><td>C3</td><td>Standing</td></t<>		Spring	C3	Standing			Spring	C3	Standing
AutumnC3StandingAutumnC3StandingWinterC3StandingAutumnC3StandingWinterC3StandingWinterC2Leisurely Walking8AnnualC2Leisurely WalkingAnnualC3Standing8SpringC2Leisurely WalkingSpringC3Standing8SummerC3Standing18SummerC3Standing9AnnualC3StandingNinterC2Leisurely Walking9AnnualC3StandingNinterC2Leisurely Walking9AnnualC3StandingNinterC2Leisurely Walking9AnnualC3StandingNinterC2Leisurely Walking9SummerC4Sitting19SummerC3Standing9SummerC4Sitting19SummerC3Standing9AnnualC3StandingYinterC3Standing9SummerC4Sitting19SummerC3Standing10AnnualC3Standing20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC3Standing10WinterC3StandingYinterC3Standing10SummerC4	7	Summer	C4	Sitting		17	Summer	C3	Standing
WinterC3StandingWinterC2Leisurely Walking8AnnualC2Leisurely WalkingAnnualC3Standing8SpringC2Leisurely WalkingAnnualC3Standing8SummerC3Standing18SummerC3Standing4AutumnC3Standing18SummerC3Standing9AnnualC3Standing18SummerC2Leisurely Walking9AnnualC3StandingMinterC2Leisurely Walking9AnnualC3StandingMinterC2Leisurely Walking9AnnualC3StandingMinterC3Standing9SummerC4Sitting19SummerC3Standing9SummerC4Sitting19SummerC3Standing9MinterC3StandingMinterC3Standing9SummerC4Sitting19SummerC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC3Standing20SummerC4Sitting10WinterC3Standing20SummerC4Sitting10WinterC3StandingMinterC3Standing10SummerC4Sitting20SummerC4Sitting <td></td> <td>Autumn</td> <td>(3</td> <td>Standing</td> <td></td> <td></td> <td>Autumn</td> <td>(3</td> <td>Standing</td>		Autumn	(3	Standing			Autumn	(3	Standing
AnnualC2Leisurely WalkingAnnualC3Standing8SpringC2Leisurely WalkingSpringC3Standing8SummerC3Standing18SummerC3StandingAutumnC3Standing18SummerC3StandingWinterC2Leisurely Walking18SummerC3StandingWinterC2Leisurely Walking18SummerC3StandingWinterC2Leisurely Walking18MutumnC3Standing9AnnualC3StandingAnnualC3Standing9SummerC4Sitting19SummerC3Standing9SummerC4Sitting19SummerC3Standing9MinterC3StandingSpringC3Standing9SummerC4Sitting19SummerC3Standing10AnnualC3StandingSpringC3Standing10SummerC4Sitting20SummerC4Sitting10NumerC3StandingSummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC3StandingStandingSummerC3Standing10SummerC3StandingStandingSummerC3Standing10 </td <td></td> <td>Winter</td> <td>C3</td> <td>Standing</td> <td></td> <td></td> <td>Winter</td> <td>C2</td> <td>Leisurely Walking</td>		Winter	C3	Standing			Winter	C2	Leisurely Walking
8SpringC2Leisurely WalkingSpringC3Standing8SummerC3Standing18SpringC3StandingAutumnC3Standing18SummerC3StandingWinterC2Leisurely Walking18SummerC3StandingWinterC2Leisurely WalkingWinterC2Leisurely Walking9AnnualC3StandingMinterC2Leisurely Walking9SummerC4Sitting19SummerC3Standing9SummerC4Sitting19SummerC3Standing9MinterC3StandingMinterC3Standing9SummerC4Sitting19SummerC3Standing10AnnualC3StandingMinterC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10SummerC4SittingMinterC3Standing11SummerC4		Annual	C2	Leisurely Walking			Annual	C3	Standing
8SummerC.2Letisticity (vinting vinterSpringC.3StandingAutumnC.3Standing18SummerC.3StandingWinterC.2Leisurely WalkingMinterC.3StandingWinterC.2Leisurely WalkingWinterC.2Leisurely Walking9AnnualC.3StandingMinterC.2Leisurely Walking9SpringC.3StandingMinterC.3Standing9SummerC.4Sitting19SummerC.3Standing9SummerC.4Sitting19SummerC.3Standing9MinterC.3StandingMinterC.3Standing9SummerC.4Sitting19SummerC.3Standing10AnnualC.3StandingMinterC.3Standing10SummerC.4Sitting20SummerC.4Sitting10MinterC.3StandingMinterC.3Standing10WinterC.3Standing20SummerC.4Sitting10MinterC.3StandingMinterC.3Standing10MinterC.3StandingMinterC.3Standing10MinterC.3StandingMinterC.3Standing10MinterC.3StandingMinterC.3Standing10		Snring	C2	Leisurely Walking			Spring	(3	Standing
AutumnC3StandingAutumnC3StandingWinterC2Leisurely WalkingAutumnC3StandingWinterC2Leisurely WalkingWinterC2Leisurely Walking9AnnualC3StandingAnnualC3Standing9SummerC4Sitting19AnnualC3Standing9SummerC4Sitting19SummerC3Standing9MinterC3StandingMinterC3Standing9SummerC4Sitting19SummerC3Standing10AnnualC3StandingMinterC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10MinterC3StandingMinterC3Standing10MinterC3StandingMinterC3Standing10MinterC3StandingMinterC3Standing10MinterC3StandingMinterC3Stand	8	Summer	C3	Standing		18	Summer	C3	Standing
WinterC2Leisurely WalkingWinterC2Leisurely Walking9AnnualC3StandingWinterC2Leisurely Walking9SpringC3StandingAnnualC3Standing9SummerC4Sitting19SummerC3StandingAutumnC4Sitting19SummerC3StandingWinterC3StandingMutumnC3StandingWinterC3StandingWinterC3Standing10SummerC4Sitting20SummerC410SummerC4Sitting20SummerC410SummerC4Sitting20SummerC410WinterC3StandingSummerC4Sitting10WinterC3StandingMutumnC3Standing10WinterC3StandingMutumnC3Standing10WinterC3StandingMutumnC3Standing10WinterC3StandingMutumnC3Standing10SummerC4Sitting20Standing10WinterC3StandingMutumnC3Standing10SummerC4SittingAutumnC3Standing10SummerC4SittingAutumnC3Standing11SummerC3StandingAu		Autumn	(3	Standing			Autumn	(3	Standing
AnnualC3StandingAnnualC3Standing9AnnualC3StandingAnnualC3Standing9SummerC4Sitting19AnnualC3StandingAutumnC4Sitting19SummerC3StandingWinterC3StandingMinterC3Standing10AnnualC3Standing20SummerC4SummerC4Sitting20SummerC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10WinterC3StandingMinterC3Standing10SummerC4SittingMinterC3Standing10SummerC4SittingMinterC3Standing10SummerC4SittingMinterC3Standing10SummerC4SittingMinterC3Standing11SummerC3StandingMinterC3Standing12SummerC4SittingMinterC3Standing13Standing<		Winter	C2	Leisurely Walking			Winter	C2	Leisurely Walking
9 Spring C3 Standing Spring C3 Standing 9 Summer C4 Sitting 19 Spring C3 Standing Autumn C4 Sitting 19 Summer C3 Standing Winter C3 Standing Mutumn C3 Standing Winter C3 Standing Winter C3 Standing 10 Summer C4 Sitting 20 Summer C4 Sitting 10 Summer C4 Sitting 20 Summer C4 Sitting 10 Summer C4 Sitting 20 Summer C4 Sitting 10 Winter C3 Standing Summer C4 Sitting		Annual	(3	Standing			Annual	(3	Standing
9 Summer C4 Sitting 19 Summer C3 Standing 9 Summer C4 Sitting 19 Summer C3 Standing Autumn C4 Sitting 19 Summer C3 Standing Winter C3 Standing Winter C3 Standing 10 Summer C4 Sitting 20 Summer C4 Sitting 10 Summer C4 Sitting 20 Summer C4 Sitting 10 Summer C4 Sitting 20 Summer C4 Sitting 10 Winter C3 Standing 20 Summer C4 Sitting		Snring	(3	Standing			Spring	(3	Standing
Autumn C4 Sitting Winter C3 Standing Annual C3 Standing Spring C3 Standing Summer C4 Sitting Vinter C3 Standing Summer C4 Sitting Summer C4 Sitting Vinter C3 Standing Summer C4 Sitting Vinter C3 Standing Summer C4 Sitting Autumn C3 Standing Winter C3 Standing Winter C3 Standing Winter C3 Standing	9	Summer	C4	Sitting		19	Summer	C3	Standing
Autumn C4 Standing Winter C3 Standing Annual C3 Standing Spring C3 Standing Summer C4 Sitting Autumn C3 Standing Summer C4 Sitting Winter C3 Standing Summer C4 Sitting Winter C3 Standing Winter C3 Standing Winter C3 Standing Winter C3 Standing		Autumn	C4	Sitting			Autumn	C3	Standing
Annual C3 Standing Annual C3 Standing 10 Annual C3 Standing Spring C3 Standing 10 Summer C4 Sitting 20 Summer C4 Sitting Autumn C3 Standing Summer C4 Sitting Summer C4 Sitting Winter C3 Standing Standing Winter C3 Standing		Winter	(3	Standing			Winter	C3	Standing
AnnualCSStandingAnnualCSStanding10SummerC3Standing20SpringC3Standing10SummerC4Sitting20SummerC4SittingAutumnC3Standing20AutumnC3StandingWinterC3StandingWinterC3Standing		Annual	(3	Standing	-		Annual	C3	Standing
10 Summer C4 Sitting 20 Summer C4 Sitting Mutumn C3 Standing Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing		Snring	(2	Standing			Snring	دع دع	Standing
Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing	10	Summer	C1	Sitting		20	Summer	C1	Sitting
Winter C3 Standing Multimit C3 Standing		Autumn	(2 (2	Standing		_*	Autumn	(3	Standing
		Winter	(3	Standing			Winter	دی دع	Standing

Note:

Comfort Classes and their description can be found in Section 3.4. Results are also shown in Figures 11a-11d, and Figures 14a-14d.

TABLE 1 (CONT) PEDESTRIAN WIND COMFORT CLASSES FOR **EXISTING SITE – SEASONAL**

Probe	Saacan	Comfort	Suitable Usage		Probe	Socon	Comfort	Suitable Usage
Location	Season	Class	Suitable Usage		Location	Season	Class	Suitable Usage
	Annual	C3	Standing			Annual	C4	Sitting
	Spring	C3	Standing			Spring	C4	Sitting
21	Summer	C4	Sitting		31	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C4	Sitting
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
22	Summer	C4	Sitting		32	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C2	Leisurely Walking
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
23	Summer	C4	Sitting		33	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
24	Summer	C4	Sitting		34	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing		35	Spring	C3	Standing
25	Summer	C4	Sitting			Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing		36	Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
26	Summer	C4	Sitting			Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C2	Leisurely Walking			Annual	C3	Standing
	Spring	C2	Leisurely Walking			Spring	C3	Standing
27	Summer	C3	Standing		37	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C2	Leisurely Walking			Winter	C2	Leisurely Walking
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
28	Summer	C4	Sitting		38	Summer	C3	Standing
	Autumn	C4	Sitting			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C2	Leisurely Walking
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
29	Summer	C4	Sitting		39	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C4	Sitting			Annual	C3	Standing
	Spring	C4	Sitting			Spring	C3	Standing
30	Summer	C4	Sitting		40	Summer	C4	Sitting
	Autumn	C4	Sitting			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing

Note:

Comfort Classes and their description can be found in Section 3.4. Results are also shown in Figures 11a-11d, and Figures 14a-14d.

TABLE 1 (CONT)PEDESTRIAN WIND COMFORT CLASSES FOREXISTING SITE – SEASONAL

Probe	Concor	Comfort	Suitable Usage	Probe	Saacan	Comfort	Suitable Usage
Location	Season	Class	Suitable Usage	Location	Season	Class	Sultable Osage
	Annual	C3	Standing		Annual	C3	Standing
	Spring	C3	Standing		Spring	C3	Standing
41	Summer	C3	Standing	51	Summer	C4	Sitting
	Autumn	C3	Standing		Autumn	C3	Standing
	Winter	C3	Standing		Winter	C3	Standing
	Annual	C3	Standing		Annual	C3	Standing
	Spring	C3	Standing		Spring	C3	Standing
42	Summer	C3	Standing	52	Summer	C4	Sitting
	Autumn	C3	Standing		Autumn	C3	Standing
	Winter	C3	Standing		Winter	C3	Standing
	Annual	C4	Sitting		Annual	C3	Standing
	Spring	C4	Sitting		Spring	C3	Standing
43	Summer	C4	Sitting	53	Summer	C4	Sitting
	Autumn	C4	Sitting		Autumn	C3	Standing
	Winter	C3	Standing		Winter	C3	Standing
	Annual	C2	Leisurely Walking		Annual	C4	Sitting
	Spring	C2	Leisurely Walking		Spring	C4	Sitting
44	Summer	C3	Standing	54	Summer	C4	Sitting
	Autumn	(3	Standing		Autumn	C4	Sitting
	Winter	C2	Leisurely Walking		Winter	C4	Sitting
	Δηριμαί	C4	Sitting		Annual	(3	Standing
	Spring	C4	Sitting		Spring	C3	Standing
45	Summer	C4	Sitting	55	Summer	C3	Standing
	Autumn	C4	Sitting		Autumn	C3	Standing
	Autumn	C4	Sitting		Autunni	0.5	Standing
	Wintor	C1	Sitting		Wintor	C2	Laiguraly Walking
	Winter	C4	Sitting		Winter	C2	Leisurely Walking
	Winter Annual	C4 C3	Sitting Standing Standing		Winter Annual Spring	C2 C3	Leisurely Walking Standing
46	Winter Annual Spring	C4 C3 C3 C4	Sitting Standing Standing Sitting	56	Winter Annual Spring	C2 C3 C3 C4	Leisurely Walking Standing Standing Sitting
46	Winter Annual Spring Summer	C4 C3 C3 C4 C3	Sitting Standing Standing Sitting Standing	56	Winter Annual Spring Summer	C2 C3 C3 C4 C3	Leisurely Walking Standing Standing Sitting Standing
46	Winter Annual Spring Summer Autumn Winter	C4 C3 C3 C4 C3 C3	Sitting Standing Standing Sitting Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3	Leisurely Walking Standing Standing Sitting Standing
46	Winter Annual Spring Summer Autumn Winter	C4 C3 C3 C4 C3 C3 C3 C3	Sitting Standing Standing Sitting Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Annual	C4 C3 C4 C3 C3 C3 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Annual Spring Summor	C4 C3 C3 C4 C3 C3 C3 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn	C4 C3 C3 C4 C3 C3 C2 C2 C2 C2 C3 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter	C4 C3 C3 C4 C3 C3 C2 C2 C2 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Standing Leisurely Walking	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter	C4 C3 C3 C4 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Standing Leisurely Walking Leisurely Walking Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Scalar	C4 C3 C3 C4 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46	Winter Annual Spring Summer Autumn Winter Autumn Winter Annual Spring Summer Autumn Winter	C4 C3 C3 C4 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer	C4 C3 C3 C4 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48	Winter Annual Spring Summer Autumn Winter Autumn Winter Annual Spring Summer Autumn Winter Autumn Winter	C4 C3 C3 C4 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48	Winter Annual Spring Summer Autumn Winter Autumn Winter Annual Spring Summer Autumn Spring Summer Autumn Winter	C4 C3 C3 C4 C3 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual	C4 C3 C4 C3 C4 C3 C2 C2 C3 C2 C3 C2 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48 48	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Annual Spring Current	C4 C3 C4 C3 C4 C3 C2 C2 C3 C2 C3 C2 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing	56	Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48 49	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Annual Spring Summer	C4 C3 C4 C3 C4 C3 C2 C2 C3 C2 C3 C2 C3 C4	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing		Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Sitting Standing Standing
46 47 48 49	Winter Annual Spring Summer Autumn Winter Autumn Winter Autumn Winter Autumn Winter Autumn Winter Annual Spring Summer Annual Spring Summer Autumn Winter	C4 C3 C4 C3 C4 C3 C2 C3 C2 C3 C2 C3 C4 C3 C4 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing		Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Standing Standing
46 47 48 49	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter	C4 C3 C4 C3 C4 C3 C2 C3 C2 C3 C2 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing		Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Standing Standing
46 47 48 49	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Autumn	C4 C3 C4 C3 C4 C3 C2 C3 C2 C3 C2 C3 C2 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing		Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Standing Standing
46 47 48 49	Winter Annual Spring Summer Autumn Winter Autumn Winter Autumn Winter Autumn Winter Annual Spring Summer Autumn Winter Annual Spring	C4 C3 C4 C3 C4 C3 C2 C3 C2 C3 C2 C3 C2 C3 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing Standing		Winter Annual Spring Summer Autumn Winter	C2 C3 C3 C4 C3 C3 C3	Leisurely Walking Standing Standing Standing Standing
46 47 48 49 50	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual	C4 C3 C4 C3 C4 C3 C2 C3 C2 C3 C2 C3 C2 C3 C3	Sitting Standing Standing Sitting Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing		Winter Annual Spring Summer Autumn Winter		Leisurely Walking Standing Standing Standing Standing Standing
46 47 48 49 50	Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn Winter Annual Spring Summer Autumn	C4 C3 C4 C3 C4 C3 C2 C3 C2 C3 C2 C3 C2 C3 C3	Sitting Standing Standing Sitting Standing Standing Leisurely Walking Leisurely Walking Leisurely Walking Leisurely Walking Standing		Winter Annual Spring Summer Autumn Winter		Leisurely Walking Standing Standing Standing Standing Standing

Note:

Comfort Classes and their description can be found in Section 3.4. Results are also shown in Figures 11a-11d, and Figures 14a-14d.

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TABLE 2PEDESTRIAN WIND COMFORT CLASSES WITH
PROPOSED DEVELOPMENT – SEASONAL

Location Jeastin Class Jointube Usage Location Jeastin Class Jointube Usage 1 Annual C3 Standing Annual C3 Standing 1 Summer C4 Sitting 11 Summer C3 Standing 4 Minter C3 Standing Winter C3 Standing 4 Mutum C3 Standing Winter C3 Standing 2 Summer C4 Sitting Annual C3 Standing 4 Mutum C3 Standing Winter C3 Standing 4 Mutum C3 Standing Mutum C3 Standing 5 Spring C2 Leisurely Walking Annual C4 Sitting 4 Mutum C2 Leisurely Walking Annual C3 Standing 4 Mutum C2 Leisurely Walking Annual C3 Standing <	Probe	Saacan	Comfort	Suitable Usage		Probe	Socon	Comfort	Suitable Usage
Annual C3 Standing Annual C3 Standing 1 Spring C3 Standing Spring C3 Standing Autumn C3 Standing Mutumn C3 Standing Autumn C3 Standing Mutumn C3 Standing Spring C3 Standing Mutumn C3 Standing Syring C3 Standing Mutumn C3 Standing Autumn C3 Standing Mutumn C3 Standing Autumn C3 Standing Mutumn C3 Standing Autumn C2 Leisurely Walking Annual C4 Sitting Autumn C2 Leisurely Walking Mutumn C3 Standing Autumn C2 Leisurely Walking Mutumn C3 Standing Autumn C2 Leisurely Walking Mutum C3 Standing Minter C3 Standing	Location	Season	Class	Suitable Usage		Location	Season	Class	Suitable Usage
Spring C3 Standing Spring C3 Standing Autumn C3 Standing Mutumn C3 Standing Winter C3 Standing Winter C3 Standing Spring C3 Standing Winter C3 Standing Spring C3 Standing Winter C3 Standing Summer C4 Sitting 12 Summer C3 Standing Annual C3 Standing Winter C3 Standing Annual C2 Leisurely Walking Spring C4 Sitting Summer C3 Standing Mutum C4 Sitting Autumn C2 Leisurely Walking Mutum C4 Sitting Autumn C2 Leisurely Walking Mutum C3 Standing Minter C2 Leisurely Walking Mutum C3 Standing Syring C3 Standing <		Annual	C3	Standing			Annual	C3	Standing
1 Summer C4 Sitting 11 Summer C3 Standing Autumn C3 Standing Autumn C3 Standing Annual C3 Standing Annual C3 Standing Spring C3 Standing Annual C3 Standing Autumn C3 Standing Annual C3 Standing Winter C3 Standing Autumn C3 Standing Antum C2 Leisurely Walking Annual C4 Sitting Spring C2 Leisurely Walking Minter C3 Standing Antumn C2 Leisurely Walking Minter C4 Sitting Autumn C2 Leisurely Walking Minter C3 Standing Autumn C2 Leisurely Walking Minter C3 Standing Autumn C2 Leisurely Walking Minter C3 Standing Spring C		Spring	C3	Standing			Spring	C3	Standing
Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing 2 Spring C3 Standing Numulal C3 Standing 2 Summer C4 Stiting 12 Summer C3 Standing 4utumn C3 Standing Winter C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C3 Standing Autumn C4 Stiting Spring C2 Leisurely Walking Winter C4 Siting Autumn C3 Standing 14 Summer C4 Siting Autumn C3 Leisurely Walking Winter C3 Standing Spring C2 Leisurely Walking Mutum C3 Standing Winter	1	Summer	C4	Sitting		11	Summer	C3	Standing
Winter C3 Standing Winter C3 Standing Annual C3 Standing Annual C3 Standing 2 Summer C4 Sitting 12 Summer C4 Sitting Autumn C3 Standing Winter C3 Standing Autumn C3 Standing Winter C3 Standing Annual C2 Leisurely Walking Minter C3 Standing Summer C3 Standing 13 Summer C4 Sitting Annual C2 Leisurely Walking Winter C4 Sitting Minter C2 Leisurely Walking Munter C3 Standing Minter C2 Leisurely Walking Munter C3 Standing Minter C2 Leisurely Walking Munter C3 Standing Minter C2 Leisurely Walking Munter C4 Sitting Mutum </td <td></td> <td>Autumn</td> <td>C3</td> <td>Standing</td> <td></td> <td></td> <td>Autumn</td> <td>C3</td> <td>Standing</td>		Autumn	C3	Standing			Autumn	C3	Standing
Annual C3 Standing Annual C3 Standing 2 Spring C3 Standing Spring C3 Standing Autumn C3 Standing Spring C3 Standing Minter C3 Standing Autumn C3 Standing Winter C3 Standing Minter C3 Standing Spring C2 Leisurely Walking Annual C4 Sitting Autumn C2 Leisurely Walking Minter C4 Sitting Autumn C2 Leisurely Walking Minter C4 Sitting Autumn C2 Leisurely Walking Minter C3 Standing Minter C2 Leisurely Walking Minter C3 Standing Minter C2 Leisurely Walking Minter C3 Standing Minter C2 Leisurely Walking Minter C4 Sitting Mutum C3		Winter	C3	Standing			Winter	C3	Standing
Spring C3 Standing Spring C3 Standing 2 Summer C4 Sitting 12 Summer C4 Sitting 4 Winter C3 Standing Winter C3 Standing 3 Spring C2 Leisurely Walking Annual C4 Sitting 3 Summer C3 Standing 13 Summer C4 Sitting 4 Minter C2 Leisurely Walking Minter C4 Sitting 4 Annual C2 Leisurely Walking Minter C3 Standing 5 Spring C2 Leisurely Walking Winter C3 Standing 4 Summer C3 Standing 14 Summer C3 Standing 5 Summer C3 Standing 14 Summer C4 Sitting 4 Mutum C3 Standing 15 Summer C3		Annual	C3	Standing			Annual	C3	Standing
2 Summer C4 Sitting 12 Summer C4 Sitting Autumn C3 Standing Winter C3 Standing Annual C2 Leisurely Walking Annual C4 Sitting Spring C2 Leisurely Walking Annual C4 Sitting Autumn C2 Leisurely Walking Summer C4 Sitting Autumn C2 Leisurely Walking Annual C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting Spring C2 Leisurely Walking Munum C3 Standing Mutum C3 Standing 14 Mutum C3 Standing Minter C2 Leisurely Walking Mutum C4 Sitting Spring C2 Leisurely Walking Mutum C4 Sitting Mutum C3 Standing Mutum C4 Sitting S		Spring	C3	Standing			Spring	C3	Standing
Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing 3 Annual C2 Leisurely Walking Annual C4 Sitting 3 Summer C3 Standing 13 Summer C4 Sitting 4 Mutumn C2 Leisurely Walking Mutum C4 Sitting 5 Spring C2 Leisurely Walking Mutum C4 Sitting 4 Summer C3 Standing 14 Summer C4 Sitting 4 Summer C3 Standing 14 Summer C4 Sitting 5 Summer C3 Standing 15 Summer C4 Sitting 6 Summer C3 Standing 15 Summer C4 Sitting 7 Minter C2 Leisurely Walking Summer C4 Sitting	2	Summer	C4	Sitting		12	Summer	C4	Sitting
Winter C3 Standing Winter C3 Standing Annual C2 Leisurely Walking Annual C4 Sitting 3 Summer C3 Standing 13 Summer C4 Sitting Autumn C2 Leisurely Walking Winter C4 Sitting Autumn C2 Leisurely Walking Minter C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting Autumn C2 Leisurely Walking Minter C3 Standing Minter C2 Leisurely Walking Minter C3 Standing Minter C2 Leisurely Walking Minter C3 Standing Spring C2 Leisurely Walking Minter C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting Summer C3 Standing Minter C4 Sitting Mut		Autumn	C3	Standing			Autumn	C3	Standing
Annual C2 Leisurely Walking Annual C4 Sitting 3 Summer C3 Standing 13 Summer C4 Sitting Annual C2 Leisurely Walking 13 Summer C4 Sitting Annual C2 Leisurely Walking Antuan C4 Sitting Annual C2 Leisurely Walking Antuan C3 Standing Annual C2 Leisurely Walking Antuan C3 Standing Autumn C2 Leisurely Walking Antuan C3 Standing Winter C2 Leisurely Walking Mutum C3 Standing Spring C2 Leisurely Walking Mutum C4 Sitting Summer C3 Standing 15 Summer C4 Sitting Summer C2 Leisurely Walking Mutum C3 Standing Mutum C3 Standing Summer C4 Sitting <td></td> <td>Winter</td> <td>C3</td> <td>Standing</td> <td></td> <td></td> <td>Winter</td> <td>C3</td> <td>Standing</td>		Winter	C3	Standing			Winter	C3	Standing
SpringC2Leisurely Walking AutumnSpringC4SittingAutumnC2Leisurely WalkingAutumnC4Sitting4MinterC2Leisurely WalkingMunterC4Sitting5SpringC2Leisurely WalkingMunterC4Sitting4SummerC3Standing14SummerC4Sitting4MutmC2Leisurely WalkingMunualC3Standing4MutterC2Leisurely WalkingMutumC3Standing5MutterC2Leisurely WalkingMutumC3Standing5SummerC3StandingMutumC4Sitting5SummerC3StandingMutumC4Sitting6SummerC3StandingMutumC4Sitting6SummerC3StandingMutumC4Sitting6SummerC3StandingMutumC4Sitting6SummerC3StandingMutumC4Sitting7AnnualC3StandingMutumC3Standing6SummerC3StandingMutumC3Standing7AnnualC2Leisurely WalkingMutumC3Standing7AnualC2Leisurely WalkingMutumC3Standing7SummerC3StandingMutumC3Stand		Annual	C2	Leisurely Walking			Annual	C4	Sitting
3 Summer C3 Standing 13 Summer C4 Sitting Autumn C2 Leisurely Walking Autumn C4 Sitting 4 Annual C2 Leisurely Walking Minter C4 Sitting 5 Spring C2 Leisurely Walking Annual C3 Standing 4 Summer C3 Standing 14 Summer C4 Sitting 4 Summer C2 Leisurely Walking Annual C3 Standing 4 Mutumn C2 Leisurely Walking Antumn C3 Standing 5 Spring C2 Leisurely Walking Minter C4 Sitting 6 Summer C3 Standing 15 Summer C4 Sitting 6 Summer C3 Standing 16 Summer C4 Sitting 7 Summer C3 Standing Minual C3 St		Spring	C2	Leisurely Walking			Spring	C4	Sitting
Autumn C2 Leisurely Walking Winter Autumn C4 Sitting Manual C2 Leisurely Walking Winter C4 Sitting Annual C2 Leisurely Walking Annual C3 Standing Spring C2 Leisurely Walking Annual C3 Standing Autumn C2 Leisurely Walking Spring C3 Standing Minter C2 Leisurely Walking Mutumn C3 Standing Spring C2 Leisurely Walking Mutumn C4 Sitting Spring C2 Leisurely Walking Spring C4 Sitting Mutumn C2 Leisurely Walking Mutumn C4 Sitting Minter C2 Leisurely Walking Winter C4 Sitting Mutumn C3 Standing 16 Summer C3 Standing Minter C2 Leisurely Walking Mutum C3 Standing	3	Summer	C3	Standing		13	Summer	C4	Sitting
Winter C2 Leisurely Walking Winter C4 Sitting 4 Annual C2 Leisurely Walking Spring C3 Standing 4 Summer C3 Standing 14 Summer C4 Sitting Autumn C2 Leisurely Walking Autumn C3 Standing Annual C2 Leisurely Walking Autumn C3 Standing Spring C2 Leisurely Walking Annual C4 Sitting Spring C2 Leisurely Walking Annual C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting Munn C2 Leisurely Walking Minter C4 Sitting Munn C3 Standing Munn C3 Standing Mutumn C3 Standing Mutumn C3 Standing Spring C2 Leisurely Walking Mutumn C3 Standing		Autumn	C2	Leisurely Walking			Autumn	C4	Sitting
Annual C2 Leisurely Walking Annual C3 Standing 4 Summer C3 Standing 14 Summer C3 Standing 4 Summer C3 Standing 14 Summer C3 Standing Autumn C2 Leisurely Walking Winter C3 Standing 5 Syring C2 Leisurely Walking Mutum C3 Standing 5 Summer C3 Standing Annual C4 Sitting 6 Summer C3 Standing Spring C4 Sitting 6 Summer C3 Standing Annual C3 Standing 6 Summer C3 Standing Annual C3 Standing 6 Summer C3 Standing Annual C3 Standing 7 Summer C3 Standing 17 Summer C4 Sitting 7 S		Winter	C2	Leisurely Walking		-	Winter	C4	Sitting
Spring C2 Leisurely Walking Spring C3 Standing 4 Summer C3 Standing 14 Summer C4 Sitting Autumn C2 Leisurely Walking Minter C3 Standing 5 Annual C2 Leisurely Walking Annual C4 Sitting 5 Summer C3 Standing 115 Summer C4 Sitting 5 Summer C3 Standing 115 Summer C4 Sitting 6 Spring C2 Leisurely Walking Winter C4 Sitting 6 Summer C3 Standing 16 Summer C3 Standing 6 Spring C2 Leisurely Walking Annual C3 Standing 7 Summer C3 Standing 16 Summer C3 Standing 7 Summer C3 Standing 17 Summer C4 <td></td> <td>Annual</td> <td>C2</td> <td>Leisurely Walking</td> <td></td> <td></td> <td>Annual</td> <td>C3</td> <td>Standing</td>		Annual	C2	Leisurely Walking			Annual	C3	Standing
4 Summer C3 Standing 14 Summer C4 Sitting Autumn C2 Leisurely Walking Autumn C3 Standing Minter C2 Leisurely Walking Winter C3 Standing Spring C2 Leisurely Walking Annual C4 Sitting Summer C3 Standing 15 Summer C4 Sitting Minter C2 Leisurely Walking Annual C4 Sitting Mutmn C2 Leisurely Walking Minter C4 Sitting Minter C2 Leisurely Walking Winter C4 Sitting Annual C3 Standing Minter C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting Mutumn C3 Standing Minter C3 Standing Minter C2 Leisurely Walking Annual C4 Sitting		Spring	C2	Leisurely Walking			Spring	C3	Standing
Autumn C2 Leisurely Walking Autumn C3 Standing Winter C2 Leisurely Walking Winter C3 Standing 5 Spring C2 Leisurely Walking Annual C4 Sitting 5 Summer C3 Standing 15 Summer C4 Sitting 6 Summer C2 Leisurely Walking Winter C4 Sitting 6 Mutumn C2 Leisurely Walking Winter C4 Sitting 6 Summer C3 Standing Mutumn C3 Standing 6 Summer C3 Standing Mutumn C3 Standing 6 Summer C3 Standing Mutumn C3 Standing 7 Minter C2 Leisurely Walking Mutumn C3 Standing 7 Summer C3 Standing Mutumn C3 Standing 7 Summer	4	Summer	C3	Standing		14	Summer	C4	Sitting
WinterC2Leisurely WalkingWinterC3Standing5SummerC2Leisurely WalkingAnnualC4Sitting5SummerC3Standing15SummerC4SittingAutumnC2Leisurely WalkingMutumnC4SittingMinterC2Leisurely WalkingWinterC4SittingWinterC2Leisurely WalkingWinterC4SittingMinterC2Leisurely WalkingWinterC4SittingSpringC2Leisurely WalkingWinterC4Sitting6SummerC3Standing16SummerC3Standing6SummerC3Standing16SummerC3Standing7AutumnC3Standing17SummerC4Sitting7SpringC2Leisurely WalkingMinterC3Standing7SummerC3Standing17SummerC4Sitting7SummerC3Standing17SummerC4Sitting8SummerC2Leisurely WalkingMinterC4Sitting8SummerC2Leisurely WalkingMinterC4Sitting9AntualC2Leisurely WalkingMinterC3Standing9SummerC2Leisurely WalkingMinterC3Standing9SummerC3St		Autumn	C2	Leisurely Walking			Autumn	C3	Standing
Annual C2 Leisurely Walking Annual C4 Sitting 5 Spring C2 Leisurely Walking 15 Summer C4 Sitting 5 Summer C3 Standing 15 Summer C4 Sitting Autumn C2 Leisurely Walking Winter C4 Sitting 6 Summer C3 Standing Autum C4 Sitting 6 Summer C3 Standing Munual C3 Standing 6 Summer C3 Standing Annual C3 Standing 7 Summer C3 Standing Muturn C3 Standing 7 Summer C3 Standing Muturn C3 Standing 7 Summer C3 Standing Muturn C4 Sitting 7 Summer C3 Standing Muturn C4 Sitting 8 Summer C		Winter	C2	Leisurely Walking			Winter	C3	Standing
Spring C2 Leisurely Walking Spring C4 Sitting 5 Summer C3 Standing 15 Summer C4 Sitting Autumn C2 Leisurely Walking Winter C4 Sitting Winter C2 Leisurely Walking Winter C4 Sitting Annual C3 Standing Autumn C4 Sitting Spring C2 Leisurely Walking Winter C4 Sitting Spring C2 Leisurely Walking Annual C3 Standing Autumn C3 Standing 16 Summer C4 Sitting Annual C3 Standing 16 Summer C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting Annual C2 Leisurely Walking Minter C4 Sitting Spring C2 Leisurely Walking Minter C4 Sitting </td <td></td> <td>Annual</td> <td>C2</td> <td>Leisurely Walking</td> <td></td> <td></td> <td>Annual</td> <td>C4</td> <td>Sitting</td>		Annual	C2	Leisurely Walking			Annual	C4	Sitting
5 Summer C3 Standing 15 Summer C4 Sitting Autumn C2 Leisurely Walking Winter C4 Sitting Winter C2 Leisurely Walking Winter C4 Sitting Spring C2 Leisurely Walking Winter C4 Sitting Spring C2 Leisurely Walking Spring C3 Standing Annual C3 Standing 16 Summer C4 Sitting Autumn C3 Standing 16 Summer C4 Sitting Minter C2 Leisurely Walking Mutumn C3 Standing Minter C2 Leisurely Walking Mutumn C4 Sitting Summer C3 Standing 17 Summer C3 Standing Minter C2 Leisurely Walking Mutumn C4 Sitting Mutum C2 Leisurely Walking Mutumn C3 <t< td=""><td></td><td>Spring</td><td>C2</td><td>Leisurely Walking</td><td></td><td rowspan="4">15</td><td>Spring</td><td>C4</td><td>Sitting</td></t<>		Spring	C2	Leisurely Walking		15	Spring	C4	Sitting
AutumnC2Leisurely WalkingAutumnC4SittingWinterC2Leisurely WalkingWinterC4SittingSpringC2Leisurely WalkingSpringC3Standing6SummerC3Standing16SummerC4SittingAutumnC3Standing16SummerC4SittingAutumnC2Leisurely WalkingMinterC3StandingWinterC2Leisurely WalkingMinterC3StandingWinterC2Leisurely WalkingMinterC3StandingSummerC3Standing17SummerC4SittingSummerC3Standing17SummerC4SittingAutumnC2Leisurely WalkingMinterC4SittingWinterC2Leisurely WalkingMinterC4SittingMinterC1Fast Walking18SummerC4SittingSpringC1Fast Walking18SummerC4SittingSummerC2Leisurely Walking18SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC4SittingSpringC3Standing<	5	Summer	C3	Standing			Summer	C4	Sitting
WinterC2Leisurely WalkingWinterC4Sitting6AnnualC3StandingAnnualC3Standing6SummerC3Standing16SummerC4SittingAutumnC3Standing16SummerC4SittingAutumnC3Standing16SummerC4SittingMinterC2Leisurely WalkingMinterC3StandingMinterC2Leisurely WalkingAnnualC4Sitting7SummerC3Standing17SummerC4Sitting7SummerC3Standing17SummerC4Sitting7SummerC2Leisurely WalkingNinterC4Sitting7SummerC2Leisurely Walking17SummerC4Sitting7SummerC2Leisurely Walking18SummerC4Sitting8SummerC2Leisurely Walking18SummerC3Standing8SummerC1Fast Walking18SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3StandingSpringC3Standing9		Autumn	C2	Leisurely Walking			Autumn	C4	Sitting
AnnualC3StandingAnnualC3Standing6SpringC2Leisurely WalkingSpringC3Standing6SummerC3Standing16SummerC4SittingAutumnC3Standing16SummerC4SittingMinterC2Leisurely WalkingWinterC3Standing7SummerC2Leisurely WalkingAnnualC4Sitting7SummerC3Standing17SummerC4Sitting7SummerC3Standing17SummerC4Sitting8SummerC2Leisurely WalkingNinterC4Sitting9AnnualC2Leisurely WalkingNinterC4Sitting9SummerC3Standing18SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing10SummerC4SittingAnnualC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC3Standing20SummerC3Standing10		Winter	C2	Leisurely Walking			Winter	C4	Sitting
SpringC2Leisurely WalkingSpringC3Standing6SummerC3Standing16SummerC4SittingAutumnC3Standing16SummerC4SittingAutumnC2Leisurely WalkingWinterC3Standing7AnnualC2Leisurely WalkingAnnualC4Sitting8SpringC2Leisurely WalkingSpringC4Sitting7SummerC3Standing17SummerC4Sitting7AutumnC2Leisurely WalkingMutumnC4Sitting8SummerC2Leisurely WalkingMutumnC4Sitting9SummerC2Leisurely Walking18SummerC3Standing9SummerC1Fast Walking18SummerC4Sitting9AnnualC2Leisurely Walking18SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC2Leisurely Walking10SummerC3Standing20SummerC4Sitting10SummerC3Standing20SummerC3Standing10SummerC3Standing20SummerC3Standing10SummerC4SittingSpringC3		Annual	C3	Standing		16	Annual	C3	Standing
6 Summer C3 Standing 16 Summer C4 Sitting Autumn C3 Standing Minter C2 Leisurely Walking Winter C3 Standing Winter C2 Leisurely Walking Winter C3 Standing Spring C2 Leisurely Walking Annual C4 Sitting Summer C3 Standing Minter C3 Standing Autumn C2 Leisurely Walking Annual C4 Sitting Autumn C2 Leisurely Walking Minter C4 Sitting Autumn C2 Leisurely Walking Minter C4 Sitting Winter C2 Leisurely Walking Minter C4 Sitting Spring C1 Fast Walking Minter C4 Sitting Summer C2 Leisurely Walking Summer C4 Sitting Mutumn C2 Leisurely Walking Minter C3 Standing Summer C2 Leisurely Walking Mi		Spring	C2	Leisurely Walking			Spring	C3	Standing
AutumnC3StandingWinterC2Leisurely WalkingWinterC3StandingMunalC2Leisurely WalkingWinterC3StandingSpringC2Leisurely WalkingAnnualC4SittingSummerC3Standing17SummerC4SittingAutumnC2Leisurely WalkingMinterC4SittingAutumnC2Leisurely WalkingWinterC4SittingWinterC2Leisurely WalkingWinterC4SittingMutumnC2Leisurely WalkingMinterC4SittingSummerC2Leisurely WalkingMutumnC3StandingSummerC2Leisurely Walking18SpringC3StandingMutumnC2Leisurely WalkingMutumnC3StandingWinterC1Fast WalkingMutumnC3StandingWinterC1Fast WalkingMuturnC3StandingMutumnC3StandingMuturnC2Leisurely WalkingSpringC2Leisurely WalkingSpringC2Leisurely WalkingSummerC3StandingMuturnC2Leisurely WalkingMutumnC3StandingMuturnC2Leisurely WalkingSpringC3StandingMuturnC3StandingMutumnC3StandingMuturnC2Leisurely WalkingMutumn	6	Summer	C3	Standing			Summer	C4	Sitting
WinterC2Leisurely WalkingWinterC3StandingAnnualC2Leisurely WalkingAnnualC4SittingSpringC2Leisurely WalkingSpringC4SittingSummerC3Standing17SummerC4SittingAutumnC2Leisurely Walking17SummerC4SittingWinterC2Leisurely Walking17SummerC4SittingWinterC2Leisurely Walking17AutumnC4SittingWinterC2Leisurely WalkingMinterC4SittingSpringC1Fast Walking18SpringC3StandingSummerC2Leisurely Walking18SummerC4SittingAnnualC2Leisurely Walking18SummerC4SittingMinterC1Fast Walking18SummerC4SittingMinterC1Fast Walking18SummerC4SittingMinterC1Fast WalkingMinterC3StandingMinterC1Fast WalkingMinterC3Standing9SummerC2Leisurely WalkingSpringC2Leisurely Walking9SummerC3StandingMinterC2Leisurely Walking9SummerC3StandingSpringC3Standing10SimmerC3StandingSummerC4 <td></td> <td>Autumn</td> <td>C3</td> <td>Standing</td> <td></td> <td>Autumn</td> <td>C3</td> <td>Standing</td>		Autumn	C3	Standing			Autumn	C3	Standing
AnnualC2Leisurely WalkingAnnualC4Sitting7SpringC2Leisurely Walking17SummerC4Sitting7SummerC3Standing17SummerC4SittingAutumnC2Leisurely Walking17SummerC4SittingWinterC2Leisurely Walking17SummerC4SittingWinterC2Leisurely WalkingAutumnC4Sitting8SpringC1Fast Walking18SummerC3Standing8SummerC2Leisurely Walking18SummerC4Sitting9SummerC1Fast Walking18SummerC4Sitting9AnnualC2Leisurely Walking18SummerC4Sitting9AnnualC2Leisurely Walking18SummerC3Standing9SpringC2Leisurely Walking19SummerC3Standing9SummerC3Standing19SummerC3Standing10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting		Winter	C2	Leisurely Walking			Winter	C3	Standing
SpringC2Leisurely WalkingSpringC4SittingAutumnC2Leisurely Walking17SummerC4SittingAutumnC2Leisurely Walking17AutumnC4SittingWinterC2Leisurely WalkingWinterC4SittingMinterC2Leisurely WalkingWinterC4SittingSpringC1Fast WalkingMinterC4SittingSummerC2Leisurely Walking18SpringC3StandingAutumnC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerStandingMinterC1Fast Walking18SummerStandingMinterC1Fast WalkingMinterC2Leisurely WalkingSpringC2Leisurely WalkingMinterC3Standing9SummerC3StandingSpringC2Leisurely Walking9SummerC3StandingMinterC2Leisurely Walking9SummerC3StandingMinterC2Leisurely Walking9SummerC3StandingSpringC3Standing9SummerC3StandingSpringC3Standing9SummerC3StandingSpringC3Standi		Annual	C2	Leisurely Walking			Annual	C4	Sitting
7SummerC3Standing17SummerC4SittingAutumnC2Leisurely WalkingAutumnC4SittingWinterC2Leisurely WalkingWinterC4Sitting8SpringC1Fast WalkingAnnualC3Standing8SummerC2Leisurely WalkingAnnualC3Standing8SummerC2Leisurely Walking18SummerC4Sitting9SummerC1Fast Walking18SummerC4Sitting9AutumnC2Leisurely WalkingMinterC3Standing9AnnualC2Leisurely WalkingMinterC3Standing9SummerC3Standing19SpringC2Leisurely Walking9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9SummerC3StandingMinterC2Leisurely Walking9SummerC3StandingMinterC2Leisurely Walking9SummerC3StandingSpringC3Standing9SummerC3StandingMinterC2Leisurely Walking9SummerC3StandingSpringC3Standing9SummerC3StandingSpringC3Standing1		Spring	C2	Leisurely Walking			Spring	C4	Sitting
AutumnC2Leisurely WalkingAutumnC4SittingWinterC2Leisurely WalkingWinterC4SittingAnnualC2Leisurely WalkingMunualC3StandingSpringC1Fast Walking18SpringC3StandingSummerC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerC4SittingWinterC1Fast Walking18SummerC3StandingWinterC1Fast WalkingMununC3StandingWinterC2Leisurely WalkingMununC2Leisurely WalkingSpringC2Leisurely WalkingSpringC2Leisurely WalkingSummerC3Standing19SummerC3StandingMutumnC3StandingMununC2Leisurely Walking10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting20SummerC3Standing10WinterC3Standing20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10SummerC4Sitting<	7	Summer	C3	Standing		17	Summer	C4	Sitting
WinterC2Leisurely WalkingWinterC4SittingAnnualC2Leisurely WalkingAnnualC3StandingSpringC1Fast WalkingSpringC3StandingSummerC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerC4SittingMinterC1Fast Walking18SummerC4SittingWinterC1Fast WalkingMutumnC3StandingWinterC1Fast WalkingMinterC3StandingWinterC1Fast WalkingMutumnC3StandingSpringC2Leisurely WalkingMutumnC2Leisurely WalkingSummerC3Standing19SummerC3StandingMinterC2Leisurely WalkingMutumnC2Leisurely WalkingSummerC3StandingMutumnC2Leisurely WalkingMinterC2Leisurely WalkingMutumnC3StandingMinterC2Leisurely WalkingMinterC2Leisurely WalkingMinterC3StandingMutumnC3StandingMinterC3StandingMinterC3StandingMinterC4SittingAnnualC3StandingMinterC4SittingAnnualC3StandingMinterC3StandingMinterC		Autumn	C2	Leisurely Walking			Autumn	C4	Sitting
AnnualC2Leisurely WalkingAnnualC3Standing8SpringC1Fast Walking18SpringC3Standing8SummerC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely Walking18SummerC4SittingWinterC1Fast Walking18MutumnC3StandingWinterC1Fast WalkingWinterC3StandingWinterC1Fast WalkingMutumnC3Standing9AnnualC2Leisurely WalkingAnnualC2Leisurely Walking9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9MinterC2Leisurely Walking19SummerC3Standing9MinterC2Leisurely Walking19SummerC3Standing10AnnualC3StandingSpringC3Standing10SummerC4Sitting20SummerC4Sitting10AutumnC3Standing20SummerC4Sitting10MinterC3StandingMutumnC3Standing10MutumnC3StandingMutumnC3Standing10MinterC3StandingMutumnC3Standing		Winter	C2	Leisurely Walking			Winter	C4	Sitting
SpringC1Fast WalkingSpringC3Standing8SummerC2Leisurely Walking18SpringC3StandingAutumnC2Leisurely Walking18MutumnC3StandingWinterC1Fast WalkingWinterC3StandingWinterC1Fast WalkingWinterC3Standing9AnnualC2Leisurely WalkingAnnualC2Leisurely Walking9SummerC3Standing19SummerC3Standing9SummerC3Standing19SummerC3Standing9MinterC2Leisurely Walking19SummerC3Standing9NutumnC3Standing19SummerC3Standing10AnnualC3Standing20SummerC4Sitting10SummerC4Sitting20SummerC4Sitting10WinterC3Standing20MutumnC3Standing10WinterC3Standing20SummerC4Sitting10WinterC3Standing20SummerC4Sitting10WinterC3StandingMutumnC3Standing10WinterC3StandingMutumnC3Standing10SummerC4SittingAutumnC3Standing		Annual	C2	Leisurely Walking			Annual	C3	Standing
8SummerC2Leisurely Walking18SummerC4SittingAutumnC2Leisurely WalkingAutumnC3StandingWinterC1Fast WalkingWinterC3Standing9AnnualC2Leisurely WalkingAnnualC2Leisurely Walking9SpringC2Leisurely WalkingSpringC2Leisurely Walking9SummerC3Standing19SummerC3Standing9AutumnC3Standing19SummerC3Standing10AnnualC3StandingWinterC2Leisurely Walking10SummerC4Sitting20SummerC4Sitting10NutumnC3Standing20SummerC4Sitting10WinterC3Standing20SummerC4Sitting10WinterC3StandingWinterC3Standing10WinterC3StandingWinterC3Standing10WinterC3StandingWinterC3Standing10WinterC3StandingMutumnC3Standing10SummerC4SittingAutumnC3Standing10SummerC4SittingAutumnC3Standing10SummerC4SittingAutumnC3Standing10Summer <t< td=""><td></td><td>Spring</td><td>C1</td><td>Fast Walking</td><td></td><td></td><td>Spring</td><td>C3</td><td>Standing</td></t<>		Spring	C1	Fast Walking			Spring	C3	Standing
AutumnC2Leisurely WalkingAutumnC3StandingWinterC1Fast WalkingWinterC3Standing9AnnualC2Leisurely WalkingAnnualC2Leisurely Walking9SpringC2Leisurely WalkingSpringC2Leisurely Walking9SummerC3Standing19SummerC3Standing4utumnC3Standing19SummerC3StandingAutumnC3StandingMinterC2Leisurely WalkingWinterC2Leisurely WalkingWinterC2Leisurely WalkingWinterC2Leisurely WalkingWinterC2Leisurely Walking10SummerC4Sitting20SummerC410SummerC4Sitting20SummerC4Sitting10WinterC3StandingWinterC3Standing10WinterC3StandingWinterC3Standing10SummerC4SittingAutumnC3Standing10WinterC3StandingMinterC3Standing10SummerC4SittingAutumnC3Standing10SummerC4SittingAutumnC3Standing11SummerC3StandingAutumnC3Standing12SummerC4SittingAutumnC3<	8	Summer	C2	Leisurely Walking		18	Summer	C4	Sitting
WinterC1Fast WalkingWinterC3Standing9AnnualC2Leisurely WalkingAnnualC2Leisurely Walking9SummerC3Standing19SpringC2Leisurely Walking9SummerC3Standing19SummerC3Standing4utumnC3Standing19SummerC3StandingWinterC2Leisurely Walking19MutumnC2Leisurely WalkingWinterC2Leisurely WalkingWinterC2Leisurely Walking10SummerC3StandingAnnualC3Standing10SummerC4Sitting20SummerC4Sitting10WinterC3StandingMutumnC3Standing10WinterC3StandingMutumnC3Standing10WinterC3StandingMutumnC3Standing10SummerC4SittingAutumnC3Standing10WinterC3StandingMutumnC3Standing10SummerC4SittingAutumnC3Standing10SummerC4SittingAutumnC3Standing11SummerC3StandingStandingStandingStanding10SummerC4SittingStandingStanding11SummerC3Standing		Autumn	C2	Leisurely Walking			Autumn	C3	Standing
AnnualC2Leisurely Walking9SpringC2Leisurely Walking9SummerC3Standing10AnnualC2Leisurely Walking10SummerC3Standing10SummerC4Sitting10SummerC3Standing10SummerC3Standing10SummerC4Sitting20SummerC4Sitting20WinterC3Standing20SummerC3Standing20SummerC4Sitting20SummerC3Standing20SummerC4Sitting20SummerC4Sitting20SummerC4Sitting20SummerC4Sitting20SummerC4Sitting20SummerC4Sitting21StandingWinterC322StandingStanding23StandingStanding24StandingStanding25StandingStanding26StandingStanding27StandingStanding28StandingStanding29StandingStanding20StandingStanding		Winter	C1	Fast Walking			Winter	C3	Standing
9 Spring C2 Leisurely Walking 9 Summer C3 Standing Autumn C3 Standing Winter C2 Leisurely Walking Winter C2 Leisurely Walking Annual C3 Standing Spring C3 Standing Spring C3 Standing Spring C3 Standing Spring C3 Standing Summer C4 Sitting Autumn C3 Standing Summer C4 Sitting Autumn C3 Standing Winter C3 Standing Winter C3 Standing		Annual	C2	Leisurely Walking			Annual	C2	Leisurely Walking
9 Summer C3 Standing 19 Summer C3 Standing Autumn C3 Standing Autumn C2 Leisurely Walking Winter C2 Leisurely Walking Winter C2 Leisurely Walking Annual C3 Standing Spring C3 Standing 10 Summer C4 Sitting 20 Summer C4 Autumn C3 Standing Autumn C3 Standing 10 Summer C4 Sitting 20 Summer C4 Winter C3 Standing Standing Standing Winter C3 Standing Standing Standing		Spring	C2	Leisurely Walking			Spring	C2	Leisurely Walking
Autumn C3 Standing Autumn C2 Leisurely Walking Winter C2 Leisurely Walking Winter C2 Leisurely Walking Annual C3 Standing Winter C2 Leisurely Walking Spring C3 Standing Annual C3 Standing 10 Summer C4 Sitting 20 Summer C4 Sitting Autumn C3 Standing Xutumn C3 Standing Standing Winter C3 Standing Xutumn C3 Standing	9	Summer	C3	Standing		19	Summer	C3	Standing
Winter C2 Leisurely Walking Winter C2 Leisurely Walking Annual C3 Standing Annual C3 Standing Spring C3 Standing Spring C3 Standing 10 Summer C4 Sitting 20 Summer C4 Sitting Autumn C3 Standing Yunter C3 Standing Winter C3 Standing Winter C3 Standing		Autumn	C3	Standing			Autumn	C2	Leisurely Walking
Annual C3 Standing Spring C3 Standing 10 Summer C4 Autumn C3 Standing Winter C3 Standing Winter C3 Standing		Winter	C2	Leisurely Walking			Winter	C2	Leisurely Walking
Spring C3 Standing Spring C3 Standing 10 Summer C4 Sitting 20 Summer C4 Sitting Autumn C3 Standing 20 Summer C4 Sitting Winter C3 Standing Winter C3 Standing		Annual	C3	Standing	1		Annual	C3	Standing
10 Summer C4 Sitting 20 Summer C4 Sitting Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing		Spring	C3	Standing		1	Spring	C3	Standing
Autumn C3 Standing Autumn C3 Standing Winter C3 Standing Winter C3 Standing	10	Summer	C4	Sitting		20	Summer	C4	Sitting
Winter C3 Standing Winter C3 Standing		Autumn	C3	Standing		1	Autumn	C3	Standing
winter co standing winter co standing		Winter	C3	Standing			Winter	С3	Standing

Note:

Comfort Classes and their description can be found in Section 3.4. Results are also shown in Figures 11a-11d, and Figures 15a-15d.

TABLE 2 (CONT) PEDESTRIAN WIND COMFORT CLASSES WITH **PROPOSED DEVELOPMENT – SEASONAL**

Probe	Season	Comfort	Suitable Usage		Probe	Season	Comfort	Suitable Usage
Location	Annual	C2	Loisuroly Walking		Location	Annual	C/	Sitting
	Spring	C2	Leisurely Walking			Spring	C4	Sitting
21	Summor	C2	Standing		31	Summor	C4	Sitting
2.	Autumn	C3	Loisuroly Walking		01	Autumn	C4	Sitting
	Mintor	C2	Leisurely Walking			Autumn	C4	Sitting
	winter	C2				winter	C4	Sitting
	Annual	C3	Standing			Annual	C3	Standing
22	Spring	C3	Standing		30	Spring	C3	Standing
22	Summer	C4	Sitting		32	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	winter	<u>C3</u>	Standing			winter	<u>C3</u>	Standing
	Annual	C3	Standing			Annual	C3	Standing
22	Spring	03	Standing		22	Spring	03	Standing
23	Summer	C4	Sitting			Summer	<u>C3</u>	Standing
	Autumn		Standing			Autumn		Standing
	Winter	<u>C3</u>	Standing			Winter	<u>C3</u>	Standing
	Annual	C3	Standing		-	Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
24	Summer	C3	Standing		34	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C2	Leisurely Walking			Winter	C3	Standing
	Annual	C3	Standing		35	Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
25	Summer	C4	Sitting			Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing		36	Annual	C3	Standing
	Spring	C2	Leisurely Walking			Spring	C3	Standing
26	Summer	C3	Standing			Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
27	Summer	C4	Sitting		37	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
28	Summer	C4	Sitting		38	Summer	C3	Standing
	Autumn	C4	Sitting			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C2	Leisurely Walking
	Spring	C3	Standing			Spring	C2	Leisurely Walking
29	Summer	C4	Sitting		39	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C2	Leisurely Walking
	Winter	C3	Standing			Winter	C2	Leisurely Walking
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
30	Summer	C4	Sitting		40	Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing

Note:

Comfort Classes and their description can be found in Section 3.4. Results are also shown in Figures 11a-11d, and Figures 15a-15d.

TABLE 2 (CONT) PEDESTRIAN WIND COMFORT CLASSES WITH **PROPOSED DEVELOPMENT – SEASONAL**

Probe	Season	Comfort	Suitable Usage		Probe	Season	Comfort	Suitable Usage
Location		Class			Location		Class	
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
41	Summer	C3	Standing		51	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing		52	Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
42	Summer	C4	Sitting			Summer	C3	Standing
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing			Spring	C3	Standing
43	Summer	C4	Sitting		53	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C3	Standing			Annual	C4	Sitting
	Spring	C3	Standing			Spring	C4	Sitting
44	Summer	C3	Standing		54	Summer	C4	Sitting
	Autumn	C3	Standing			Autumn	C4	Sitting
	Winter	C2	Leisurely Walking			Winter	C4	Sitting
	Annual	C4	Sitting			Annual	C3	Standing
	Spring	C4	Sitting			Spring	C3	Standing
45	Summer	C4	Sitting		55	Summer	C4	Sitting
	Autumn	C4	Sitting			Autumn	C3	Standing
	Winter	C4	Sitting			Winter	C3	Standing
	Annual	C3	Standing			Annual	C3	Standing
	Spring	C3	Standing		56	Spring	C3	Standing
46	Summer	C4	Sitting			Summer	C4	Sitting
	Autumn	C4	Sitting			Autumn	C3	Standing
	Winter	C3	Standing			Winter	C3	Standing
	Annual	C2	Leisurely Walking					
	Spring	C2	Leisurely Walking					
47	Summer	C3	Standing					
	Autumn	C3	Standing					
	Winter	C2	Leisurely Walking					
	Annual	C3	Standing					
	Spring	C3	Standing					
48	Summer	C4	Sitting					
	Autumn	C3	Standing					
	Winter	C3	Standing					
	Annual	C3	Standing					
	Spring	C3	Standing					
49	Summer	C4	Sitting					
	Autumn	C3	Standing					
	Winter	C3	Standing					
	Annual	C3	Standing					
	Spring	С3	Standing					
50	Summer	C4	Sitting					
	Autumn	C3	Standing					
	Winter	С3	Standing					

Note:

Comfort Classes and their description can be found in Section 3.4. Results are also shown in Figures 11a-11d, and Figures 15a-15d.

FIGURES





FIGURE 1 SITE PLAN OF THE DEVELOPMENT















RELATIVE IMPORTANCE OF AZIMUTHAL SECTOR TO THE PROBABILITY OF EXCEEDING VARIOUS RETURN-PERIOD WIND SPEEDS – SEASONAL FIGURE 4b





FIGURE 5 CLOSE UP VIEWS – PROPOSED DEVELOPMENT (top) AND EXISTING SITE (bottom)





Exposure 1 – Existing Configuration



Exposure 2 – Proposed Configuration

FIGURE 6 PHOTOGRAPHS OF THE MODEL IN THE WIND TUNNEL SHOWING THE UPSTREAM TERRAIN MODEL (EXPOSURES) USED



FIGURE 7 AZIMUTH RANGES OVER WHICH THE UPSTREAM TERRAIN MODELS WERE USED





VERTICAL PROFILE OF MEAN WIND SPEED AND LONGITUDINAL TURBULENCE INTENSITY MEASURED JUST UPSTREAM OF THE PROXIMITY MODEL FIGURE 8



FIGURE 9a MEASUREMENT LOCATIONS FOR PEDESTRIAN-LEVEL WIND SPEEDS – EXISTING DEVELOPMENT





FIGURE 9b MEASUREMENT LOCATIONS FOR PEDESTRIAN-LEVEL WIND SPEEDS – PROPOSED DEVELOPMENT





PREDICTED WIND SPEEDS COMPARED WITH CRITERIA FOR PEDESTRIAN SAFETY FIGURE 10





PREDICTED WIND SPEEDS COMPARED WITH CRITERIA FOR PEDESTRIAN COMFORT – SPRING FIGURE 11a









PREDICTED WIND SPEEDS COMPARED WITH CRITERIA FOR PEDESTRIAN COMFORT – AUTUMN FIGURE 11c





PREDICTED WIND SPEEDS COMPARED WITH CRITERIA FOR PEDESTRIAN COMFORT – WINTER FIGURE 11d





FIGURE 12 SUMMARY OF PREDICTED <u>SAFETY</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – EXISTING SITE





FIGURE 13 SUMMARY OF PREDICTED <u>SAFETY</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – PROPOSED DEVELOPMENT





FIGURE 14a SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – EXISTING SITE - SPRING





FIGURE 14b SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – EXISTING SITE - SUMMER





FIGURE 14c SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – EXISTING SITE - AUTUMN





FIGURE 14d SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – EXISTING SITE - WINTER





FIGURE 15a SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – PROPOSED DEVELOPMENT - SPRING





FIGURE 15b SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – PROPOSED DEVELOPMENT - SUMMER





FIGURE 15c SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – PROPOSED DEVELOPMENT - AUTUMN





FIGURE 15d SUMMARY OF PREDICTED <u>COMFORT</u> LEVELS FOR PEDESTRIAN-LEVEL WIND SPEEDS – PROPOSED DEVELOPMENT - WINTER



APPENDIX A

PROBABILITY DISTRIBUTIONS OF WIND SPEED AND DIRECTION

In the plots, the radial distance represents the wind speed at a reference height of 500 m in standard open country exposure. Contours are plotted for four probability levels: the innermost contour is for a probability level of 0.01 or 1% of the time. The other contours represent 0.1%, 0.01% and 0.001% of the time. Thus, the more-common winds are represented by the inner contours and the more-rare winds by the outer contours.

These plots have been derived using data at 16 compass directions, which were interpolated to every 10° . Thus, a point on the innermost contour would represent the wind speed that is exceeded 1% of the time within a 10° sector centred on that wind direction.

To determine the probability of exceeding a particular wind speed at a particular direction, interpolate between the contour levels. For example, to determine the probability of exceeding 20 m/s from the west, find the point on the plot corresponding to this speed and direction. In this case (for 20 m/s at 270°), the probability of exceeding 20 m/s from the west falls between the 1% and 0.1% contours, and is approximately 0.35%.

The probability of a particular wind speed being exceeded regardless of direction can be obtained by summing the probabilities of exceeding that wind speed at every 10° over the full 360° azimuth range.





A point on the innermost contour represents the wind speed exceeded 1% of the time within a 10 degree sector centred on that direction. Other contours represent probability levels of: 0.1%, 0.01% and 0.001% respectively.

Waterloo, ON (ISH 713680)





A point on the innermost contour represents the wind speed exceeded 1% of the time within a 10 degree sector centred on that direction. Other contours represent probability levels of: 0.1%, 0.01% and 0.001% respectively.

Waterloo, ON (ISH 713680)



APPENDIX B

POLAR PLOTS OF SPEED COEFFICIENTS

Speed ratios are the speed at the probe height divided by the speed at reference height (see Figure 3).

The azimuth indicated refers to the direction of the oncoming reference-height wind flow, measured from true North. Surface wind directions may vary considerably from these.

Note: Peak = Mean + 1.5 Standard Deviations



APPENDIX C

PRELIMINARY LANDSCAPE CONCEPT





1:400 (11x17 PLOT) | March 8, 2022 | Project No.: 21358 | Drawn By: CM

785 GORDON STREET PRELIMINARY LANDSCAPE CONCEPT GUELPH, ON.