Guide to the Completion of the OAA Building Code Data Matrices

Summary

A building code data matrix presents pertinent selected elements from a detailed code analysis to provide an overview of the key code factors in the design to municipal building officials and others. The data matrices developed by the OAA are templates intended to be modified as needed to adequately present the key building code decisions made in the design of a building.

Following is guidance for completing information for each type of matrix for Parts 3, 9, 10, or 11. Refer also to general information regarding Procedures in Practice Tip PT.03.

If there is insufficient space in a matrix for any information, insert additional rows or list the information in a separate table identifying the item to which it relates, and cross-reference to the additional information. Where more space is provided than is needed, hide or delete the unnecessary rows.

Where using the MS Excel templates (available only to OAA members), refer to additional information in the "Read Me First" tab of the Excel workbook. Where using the MS Word template versions with MS Word for the Mac, the functional check-boxes may not appear or function due to updates in MS Word software that has not currently been updated in Word for Mac software.

References

Practice Tip PT.03 Building Code Data Matrix

Practice Tip PT.35 Importance Category and Seismic Restraint

Part 3

General Information

Enter the name of the practice, office address, and contact person.

Enter the name of the project with a brief identifying description (e.g. Lester Pearson Elementary School) and the official address/location of the project.

Enter the date the information entered in the form was last updated.

3.00 Building Code Version

Confirm the building code version to which the project is designed by noting the regulation for the issued building code and the last code amendment regulation.

3.01 Project Type

Identify the Project type as either New Construction, Addition, Renovation, Addition and Renovation, or Change of Use. Provide a brief description of the project: (e.g. construction of two-storey addition to the east face).

3.02 Major Occupancy Classification

Identify each of the major occupancy group in the building and describe their use (e.g. D - Business and Personal Services / Medical Clinic). Refer to Ontario Building Code (OBC) 3.1.2. and to Appendix A to the building code for multiple major occupancies. Refer also to Hazard Index tables 11.2.1.1.B – 11.2.1.1.N in Part 11 of the building code and A-3.1.2.1 (1) of Appendix A to the building code for assistance in determining or classifying major occupancies.

3.03 Superimposed Major Occupancies

Indicate if the building is designed with superimposed major occupancies. If “Yes”, provide a brief description. (e.g. three stories of Group C – Residential, superimposed over one storey of Group E - Retail).

3.04 Building Area

Indicate the building area for existing and new portions of the building and provide a total. Provide a simple description of the areas (e.g. existing building, east addition). If a portion of the building is to be demolished, enter in the Existing column only that portion which is to remain, such that the total of the new and existing is the area of the final project. Refer to OBC definitions for building area and gross floor area.

3.05 Gross Floor Area

Indicate the gross floor area for existing and new portions of the building and provide a total. Provide a simple description of the areas (e.g. existing building, east addition). If a portion of the building is to be demolished, enter in the Existing column only that portion which is to remain, such that the total of the new and existing is the gross floor area of the final project. Refer to OBC definitions for building area and gross floor area.

3.06 Mezzanine Area

Note whether there are mezzanines, how many, where, and their areas. Provide a simple description of the areas (e.g. existing building, east addition). If a portion of a mezzanine is to be demolished, enter in the Existing column only that portion which is to remain, such that the total of the new and existing is the area of the final mezzanine. Refer to OBC definitions for mezzanine. If there are no mezzanines, enter N/A.

3.07 Building Height

Enter the number of storeys above and below grade, and the building height as defined.

3.08 High Building

Check the appropriate “Yes” or “No” box in regard to whether the building is a high building as defined.

3.09 Number of Streets / Firefighter Access.

Enter number of streets and fire access routes.

3.10 Building Classification

Identify the classification of the building according to 3.2.2. Building Size and Construction Relative to Occupancy. A building may have different major occupancies, but it is generally given one classification with the most restrictive occupancy governing. However, superimposed occupancies may be separately classified. List occupancies in the same order as in 3.02.

3.11 Sprinkler System, 3.12 Standpipe System, 3.13 Fire Alarm Systems, and 3.14 Water Service/Supply

Obtain information from engineers and check the appropriate boxes.

3.15 Construction Type

Identify the project construction restrictions (“combustible permitted”, “non-combustible required”, “encapsulated mass timber”) (refer to Building Classification).

Indicate the actual construction (“combustible”, “non-combustible”, “combustible & non-combustible in combination”, “encapsulated mass timber”, or “encapsulated mass timber & non-combustible in combination”) and whether heavy timber construction is used.

3.16 Importance Category

Check the appropriate box for Importance Category and refer to PT.35 Importance Category and Seismic Restraint for completion of this section of the building code data matrix. Obtain information as required from a structural and geotechnical engineer.

Provide the seismic hazard index, calculated in accordance with Part 4. To calculate the seismic hazard index, obtain information on the importance category, site class, 5% spectral response acceleration, earthquake importance factor, and acceleration-based coefficient. Obtain site class information from the owner. This information is typically provided in a geotechnical investigation report.

3.17 Seismic Hazard Index

Provide the seismic hazard index, calculated in accordance with Part 4. To calculate the seismic hazard index, obtain information on the importance category, site class, 5% spectral response acceleration, earthquake importance factor, peak ground acceleration (PGA), PGA factor, PGA reference, and site coefficient. Obtain site class information from the owner. This information is typically provided in a geotechnical investigation report. Identify the use of seismic isolation and supplemental energy dissipation systems.

If using the workbook, take advantage of the Seismic Supplement tab.

3.18 Occupant Load

Provide design information as to the occupancy and occupant load per floor area and the method of calculation. Note whether the design requires a posted occupant load limit.

3.19 Barrier-free Design

Identify if the building requires barrier-free design and, if not, state the reason for the exception. State the number of barrier-free entrances and provide an explanation if needed.

3.20 Hazardous Substances

Check appropriate box in regard to hazardous substances to be found in connection with any of the occupancies in the project.

3.21 Required Fire Resistance Ratings

In the spaces provided, enter the fire resistance rating required for horizontal assemblies (e.g. floors, roofs, and mezzanines), as well as the supporting members for these.

Indicate where non-combustible construction is used in lieu of ratings (where permitted). Note that the fire resistance ratings required may change for different major occupancies.

If the table in the matrix will not accommodate all the information, prepare a separate table and/or schematic plan and cross-reference accordingly.

Indicate the listed design numbers (e.g. ULC, cUL, MMAH SB-2) for the horizontal assemblies and their supporting members in an appropriate location in the construction documents, such as a building assemblies schedule where the designations can be more readily associated with a location or construction type.

3.22 Spatial Separation

Provide the spatial separation information in the appropriate columns for each building face/compartment as applicable. Provide a description of the exposing building face (e.g. “West Elevation”, “North Wall, Fire Compartment 1”) and identify them on the drawings using the same terminology.

Provide the area of unprotected openings, required fire resistance rating, construction type (“combustible permitted”, “non-combustible required”, “encapsulated mass timber”) and cladding type (“combustible permitted”, “non-combustible required”).

3.23 Plumbing Fixture Requirements

Provide design information as to the occupancy, occupant load male/female ratio, and water closets required and provided.

Add plumbing fixture calculations either on the same drawing sheet as the matrix or separately, confirming that the number of plumbing fixtures provided is not less than required by the occupant loads for the various occupancies. It may be necessary to provide a breakdown of the various occupancies in order to provide the required information with clarity. Adapt the matrix to clearly describe the project.

Where there is an occupancy change under Part 11, Section 3.7 applies and may require an adjustment of the required number of plumbing fixtures due to the change in occupancy or specific use within an occupancy.

Account appropriately for any barrier-free requirements and unisex or universal washrooms.

3.24 Energy Efficiency

State the Compliance Path utilized in the design and indicate both the Climatic Zone and design degree days below 18 C.

3.25 Sound Transmission Design

Indicate whether there is more than one dwelling unit in the building and, if so, which compliance option was chosen.

3.26 Notes

Identify any alternative solutions relied on for the design, and enter other information that, in your professional judgment, will assist in expediting issuance of the building permit.

Part 9 – Housing and Small Buildings

This section of the Guide includes only information that differs from a Part 3 matrix. For any items in this matrix not described below, refer to the information for completion of a Part 3 matrix.

9.13 Post-disaster Building

Indicate if the building is a Post-disaster building. If “Yes”, refer to Practice Tip PT 35.

9.20 Energy Efficiency

Indicate “Residential” or “Non-Residential” as the Energy Efficiency category.

Indicate the appropriate compliance option for “Residential” or “Non-Residential” categories.

The Project Design Conditions section is used to indicate Climatic Zone, Fenestration, Skylights, Space Heating Fuel, Heating Equipment Efficiency, Other Conditions, and Compliance Package selected.

Provide supporting information/documentation to support compliance path as required.

Part 10 – Change of Use

This section includes only information that differs from a Part 3 matrix. For any items in this matrix not described below, refer to the information for completion of a Part 3 matrix.

10.06 Building Size

Indicate the size of the building as Small, Medium, Large, or >Large. Refer to the notes at the end of the hazard index tables 11.2.1.1.B-N. Note that building size definition varies for different occupancies.

10.07 Existing Building Classification

Indicate if there is a change in the major occupancy of the building or portion thereof being renovated.

If there is a change in the major occupancy, then classify the building according to its construction index [1-8] and hazard index [1-7].

As required, indicate the construction index of the building based on its type of construction and fire-resistance ratings.

As required, indicate the hazard index of the building based on its occupancy and size. Building height is required in order to classify the “size” of the building and consequently determine its hazard index.

Indicate the importance category of the building [“Low”, “Normal”, “High”, “Post-Disaster”]. For “Low” and “High” categories, provide further explanation for their classification (e.g. “low human occupancy” or “explosive substances”).

10.09 Reduction in Performance Level

Identify if there is any reduction in performance level of any system or portion of the building. Obtain necessary information regarding structural, plumbing, and sewage systems from the relevant consultants.

If there is a reduction, provide a brief explanation in the subsequent rows (e.g. “Increase in occupant load of >15% [OBC 11.4.2.2.(1)]”).

10.10 Compliance Alternatives Proposed

Identify if any compliance alternatives are proposed.

If “Yes”, identify the numbers from the appropriate compliance alternative tables [OBC T11.5.1.1.A-F] and provide a brief description.

Part 11 – Renovation

This section includes only information that differs from a Part 3 matrix. For any items in this matrix not described below, refer to the information for completion of a Part 3 matrix.

11.07 Building Size

Indicate the size of the building as Small, Medium, Large, or >Large. Refer to the notes at the end of the hazard index tables 11.2.1.1.B-N. Note that building size definition varies for different occupancies.

11.08 Existing Building Classification

Indicate if there is a change in the major occupancy of the building or portion thereof being renovated.

If there is a change in the major occupancy, then classify the building according to its construction index [1-8] and hazard index [1-7].

As required, indicate the construction index of the building based on its type of construction and fire-resistance ratings.

As required, indicate the hazard index of the building based on its occupancy and size. Building height is required in order to classify the "size" of the building and consequently determine its hazard index.

Indicate the importance category of the building ["Low", "Normal", "High", "Post-Disaster"]. For "Low" and "High" categories, provide further explanation for their classification (e.g. "low human occupancy" or "explosive substances").

11.09 Renovation Type

Indicate the renovation type of the project [Basic Renovation, Extensive Renovation].

11.13 Reduction in Performance Level

Identify if there is any reduction in performance level of any system or portion of the building. Obtain necessary information regarding structural, plumbing, and sewage system from the relevant engineers.

If there is a reduction, provide a brief explanation in the subsequent rows (e.g. "Increase in occupant load of >15% [OBC 11.4.2.2.(1)]").

11.14 Compensating Construction

Identify if compensating construction is required ["Yes", "No", "N/A"]. If "Yes", provide a brief explanation in the subsequent rows (e.g. "Early warning and evacuation system to be upgraded as indicated [OBC 11.4.3.3.(1)]").

11.15 Compliance Alternatives Proposed

Identify if any compliance alternatives are proposed ["Yes", "No", "N/A"].

If "Yes," identify the numbers from the appropriate compliance alternative tables [OBC T11.5.1.1.A-F] and provide a brief description.