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Institut canadien des évaluateurs

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BUILDING MEASUREMENT GUIDELINE

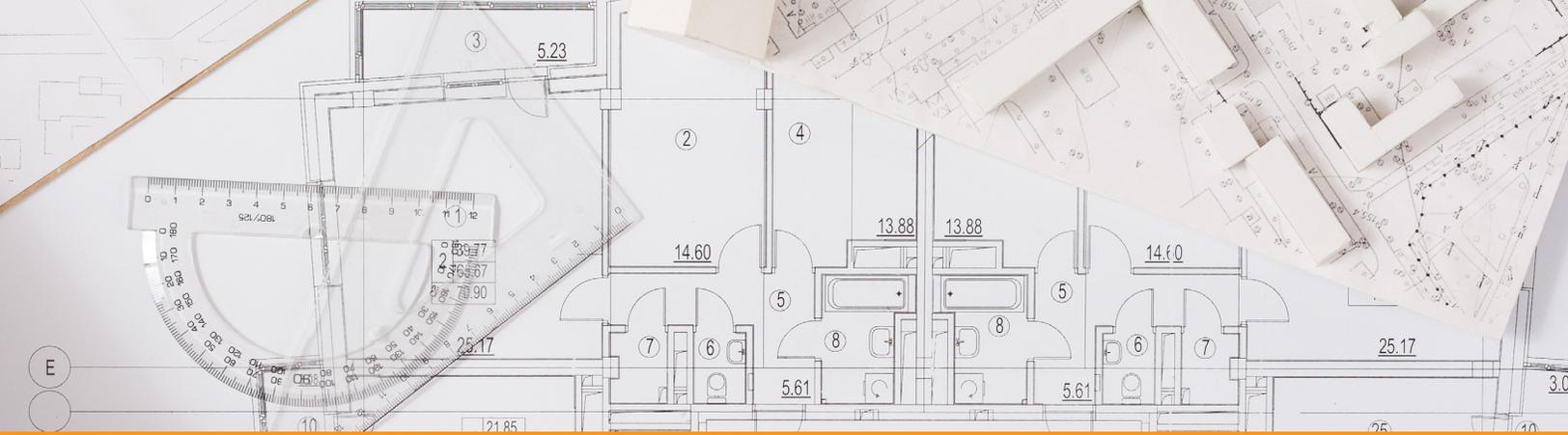




TABLE OF CONTENTS

Introduction	3
Example 1 ~ One Storey	4
Example 2 ~ One and One-Half Storey without Dormers	4
Example 3 ~ One and One-Half Storey with Dormers	5
Example 4 ~ Basic Two Storey	5
Example 5 ~ Two Storey with Built-in Garage	6
Example 6 ~ Two Storey with Bay Window; 2nd Floor Overhang and Side Addition on Main Fl or	6
Example 7 ~ Two and One-half Storey Without Dormers	7
Example 8 ~ Bi-Levels, Raised Bungalows or Split Entries	7
Example 9 ~ Split Level or Three Level Side Split	8
Example 10 ~ Three Level Split Without Built-in Garage (Four Level Split)	8
Example 11 ~ Three Level Split With Built-in Garage	9
Example 12 ~ One Storey with Concrete Slab Foundation	9
Example 13 ~ Bi-Level or Two Storey on Slab Foundation (Maritime Style)	10
Example 14 ~ One, One and One-Half Storey, and Two Storey with Part Basement	10
Example 15 ~ Two Storey with Open Foyer to Second Level	11
Commercial Property Measurement	11





INTRODUCTION

The Residential Commercial Measurement Guidelines handbook has been developed to provide the real estate appraiser, and those in related professions, with a recommended way of calculating the liveable area space in a variety of residential and commercial structures.

When calculating total living area space, the liveable floor area includes only liveable area above grade that provides heated year round use. This does not include three season sun rooms, porches, verandahs or heated garages. In establishing the livable floor area, consideration should be given to the use that may be made of the space. Where in question, the methodology used to establish livable floor area should be defined and applied consistently.

Since a large percentage of the Canadian population continues to think of measurements imperially, this handbook reflects both imperial and metric.

The following conversion chart will assist the reader in understanding how to convert from metric to imperial measurements.

CONVERSION CHART

1 metre (m) = 3.28 feet (ft)

1 square metre (m²) = 10.76 square feet (ft²)

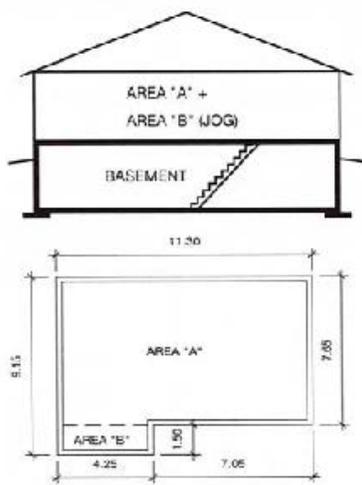
Note:

No mandated Canadian standards exist for building measurement. A widely accepted measurement standard for residential properties is Square Footage Method for Calculating: ANSI Z765-2003 (have in italic), developed by the National Association of Home Builders (NAHB) Research Centre with the American National Standards Institute (ANSI). The ANSI Standard has been adopted in certain jurisdictions as the de facto standard for measuring single-family dwellings. The practitioner must ensure that their measurement practice complies with the jurisdictional requirements of the property under review.



EXAMPLE 1 ~ ONE STOREY

Basically self-explanatory. Exterior length times width of base of dwelling, and exterior length times width of projections and cantilevered areas. The area above grade (ground) is considered liveable floor area. Do not include basement (below grade) area, developed or undeveloped, as liveable floor area.



METRIC

Area "A" $11.30 \times 7.65 = 86.45 \text{ m}^2$

Area "B" $4.25 \times 1.50 = 6.38 \text{ m}^2$

**TOTAL LIVING AREA =
92.83 m²**

IMPERIAL

Area "A" $37.06 \times 25.09 = 929.84 \text{ ft}^2$

Area "B" $13.94 \times 4.92 = 68.58 \text{ ft}^2$

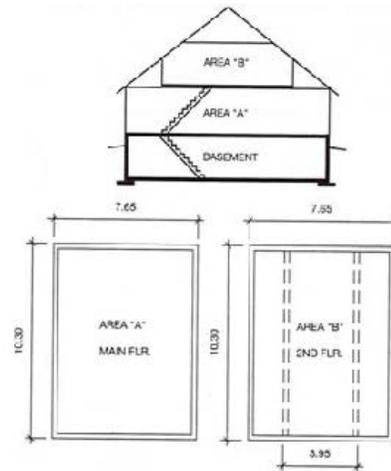
**TOTAL LIVING AREA =
998.42 ft²**

EXAMPLE 2 ~ ONE AND ONE-HALF STOREY WITHOUT DORMERS

Area A is calculated as exterior length times width of base of dwelling, and exterior length times width of projections and cantilevered areas.

For Area B measurement, consider liveable floor area* as interior length times width to knee wall (angle where wall meets ceiling). An additional fifteen to twenty centimeters (approximately six to eight inches) may be included to account for the exterior wall.

* In establishing the livable floor area, consideration should be given to the use that may be made of the space. Where in question, the methodology used to establish livable floor area should be defined and applied consistently.



METRIC

Area "A" $10.30 \times 7.65 = 78.80 \text{ m}^2$

Area "B" $10.30 \times 3.95 = 40.69 \text{ m}^2$

**TOTAL LIVING AREA =
119.49 m²**

IMPERIAL

Area "A" $33.78 \times 25.09 = 847.54 \text{ ft}^2$

Area "B" $33.78 \times 12.96 = 437.79 \text{ ft}^2$

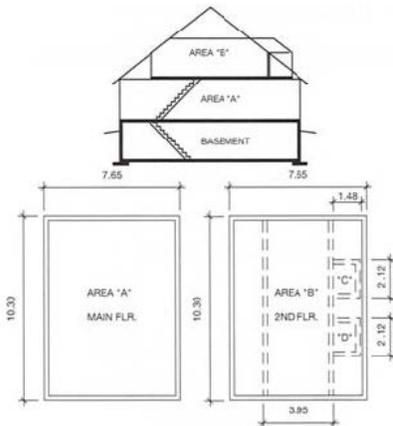
**TOTAL LIVING AREA =
1,285.33 ft²**

EXAMPLE 3 ~ ONE AND ONE-HALF STOREY WITH DORMERS

Area A is calculated as exterior length times width of base of dwelling, and exterior length times width of projections and cantilevered areas.

For Area B measurement, consider liveable floor area* as interior length times width to knee wall (angle where wall meets ceiling), plus length times width of dormers. An additional fifteen to twenty centimeters (approximately six to 8 inches) may be included to account for the exterior wall.

* In establishing the livable floor area, consideration should be given to the use that may be made of the space. Where in question, the methodology used to establish livable floor area should be defined and applied consistently.



METRIC

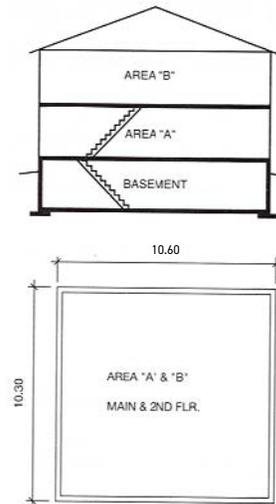
Area "A" $10.30 \times 7.65 = 78.80 \text{ m}^2$
 Area "B" $10.30 \times 3.95 = 40.69 \text{ m}^2$
 Area "C & D" $2 (2.12 \times 1.48) = 6.28 \text{ m}^2$
TOTAL LIVING AREA =
 125.77 m^2

IMPERIAL

Area "A" $33.78 \times 25.09 = 847.54 \text{ ft}^2$
 Area "B" $33.78 \times 12.96 = 437.79 \text{ ft}^2$
 Area "C & D" $2 (6.95 \times 4.85) = 67.42$
ft² TOTAL LIVING AREA =
 $1,352.75 \text{ ft}^2$

EXAMPLE 4 ~ BASIC TWO STOREY

Exterior length times width multiplied by two.



METRIC

Area "A" $10.30 \times 10.60 = 109.18 \text{ m}^2$
 Area "B" $10.30 \times 10.60 = 109.18 \text{ m}^2$
TOTAL LIVING AREA =
 218.36 m^2

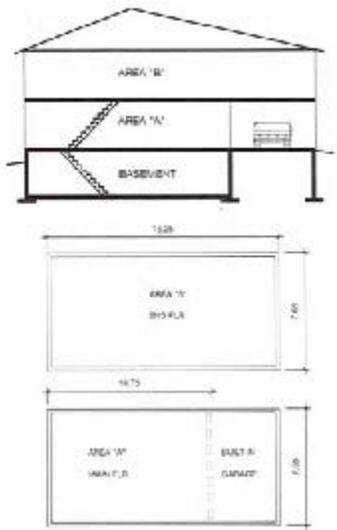
IMPERIAL

Area "A" $33.78 \times 34.77 = 1,174.53 \text{ ft}^2$
 Area "B" $33.78 \times 34.77 = 1,174.53 \text{ ft}^2$
TOTAL LIVING AREA =
 $2,349.06 \text{ ft}^2$

EXAMPLE 5 ~ TWO STOREY WITH BUILT-IN GARAGE

Area A is the exterior length times width, excluding the garage.

Area B is the exterior length times width.



METRIC

Area "A" $7.65 \times 10.75 = 82.24 \text{ m}^2$

Area "B" $7.65 \times 15.25 = 116.66 \text{ m}^2$

**TOTAL LIVING AREA =
198.90 m²**

IMPERIAL

Area "A" $25.09 \times 35.26 = 884.67 \text{ ft}^2$

Area "B" $25.09 \times 50.02 = 1,255.00 \text{ ft}^2$

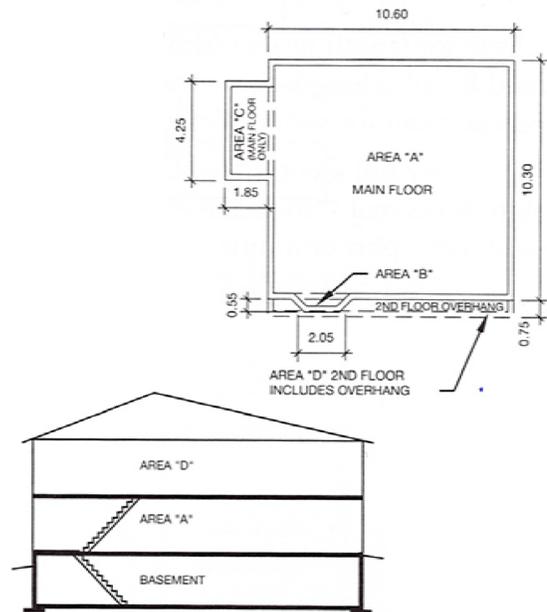
**TOTAL LIVING AREA =
2,139.67 ft²**

EXAMPLE 6 ~ TWO STOREY WITH BAY WINDOW; 2ND FLOOR OVERHANG AND SIDE ADDITION ON MAIN FLOOR

Area A is the exterior length times width.

Area D is the exterior length times width, including overhang.

Exterior dimensions of addition and bay window.



METRIC

Area "A" $10.30 \times 10.60 = 109.18 \text{ m}^2$

Area "B" $0.55 \times 2.05 = 1.13 \text{ m}^2$

Area "C" $4.25 \times 1.85 = 7.86 \text{ m}^2$

Area "D" $11.05 \times 10.60 = 117.13 \text{ m}^2$

**TOTAL LIVING AREA =
235.30 m²**

IMPERIAL

Area "A" $33.78 \times 34.77 = 1,174.53 \text{ ft}^2$

Area "B" $1.80 \times 6.72 = 12.10 \text{ ft}^2$

Area "C" $13.94 \times 6.07 = 84.62 \text{ ft}^2$

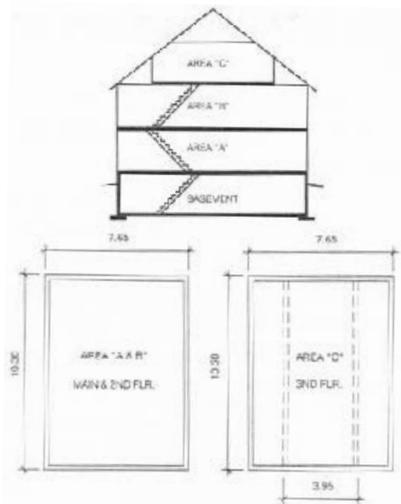
Area "D" $36.24 \times 34.77 = 1,260.06 \text{ ft}^2$

**TOTAL LIVING AREA =
2,531.31 ft²**

EXAMPLE 7 ~ TWO AND ONE-HALF STOREY WITHOUT DORMERS

Exterior length times width multiplied by two (Area A and B), plus length times width to knee wall and again account for width of exterior walls.

Consider full second, third, etc., levels where ceiling height is normal. Normal is estimated to be 2.4m (eight feet), plus or minus.



METRIC

Area "A" $10.30 \times 7.65 = 78.80 \text{ m}^2$

Area "B" $10.30 \times 7.65 = 78.80 \text{ m}^2$

Area "C" $10.30 \times 3.95 = 40.69 \text{ m}^2$

**TOTAL LIVING AREA =
198.29 m²**

IMPERIAL

Area "A" $33.78 \times 25.09 = 847.54 \text{ ft}^2$

Area "B" $33.78 \times 25.09 = 847.54 \text{ ft}^2$

Area "C" $33.78 \times 12.96 = 437.79 \text{ ft}^2$

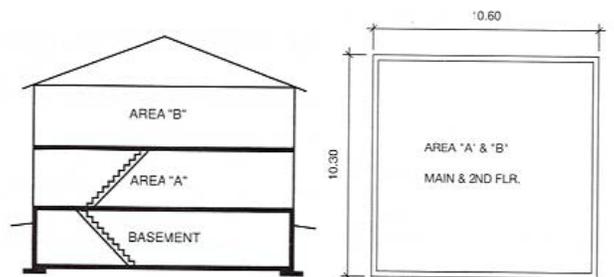
**TOTAL LIVING AREA =
2,132.87 ft²**

EXAMPLE 8 ~ BI-LEVELS, RAISED BUNGALOWS OR SPLIT ENTRIES

Two elevation drawings are shown. The first drawing is without an overhang and the second drawing includes an overhang.

Basement in Bi-levels are usually fully developed and quite often used as liveable space.

During the time of original construction, liveable floor area is considered to be that above grade. Therefore, only exterior length times width of Area A is considered to be liveable floor area.



METRIC

Area "A" $10.30 \times 10.60 = 109.18 \text{ m}^2$

**TOTAL LIVING AREA =
109.18 m²**

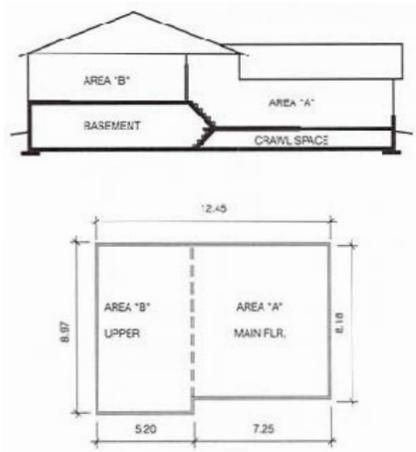
IMPERIAL

Area "A" $33.78 \times 34.77 = 1,174.53 \text{ ft}^2$

**TOTAL LIVING AREA =
1,174.53 ft²**

EXAMPLE 9 ~ SPLIT LEVEL OR THREE LEVEL SIDE SPLIT

Consider Areas A and B above grade. Area under right side of diagram is a crawl space, approximately 60 cm to 1.2 m (two to four feet) in height.



METRIC

Area "A" 7.25 x 8.18 = 59.31 m²

Area "B" 5.20 x 8.97 = 46.64 m²

**TOTAL LIVING AREA =
105.95 m²**

IMPERIAL

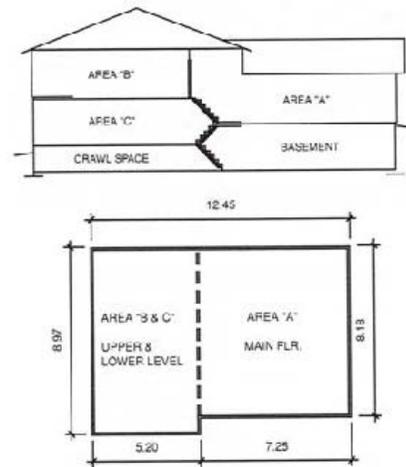
Area "A" 23.78 x 26.83 = 638.02 ft²

Area "B" 17.06 x 29.42 = 501.91 ft²

**TOTAL LIVING AREA =
1,139.93 ft²**

EXAMPLE 10 ~ THREE LEVEL SPLIT WITHOUT BUILT-IN GARAGE (FOUR LEVEL SPLIT)

Measure exterior length times width of Areas A, B and C. Basement and crawl space areas are not considered to be liveable floor area.



METRIC

Area "A" 7.25 x 8.18 = 59.31 m²

Area "B" 5.20 x 8.97 = 46.64 m²

Area "C" 5.20 x 8.97 = 46.64 m²

**TOTAL LIVING AREA =
152.59 m²**

IMPERIAL

Area "A" 23.78 x 26.83 = 638.02 ft²

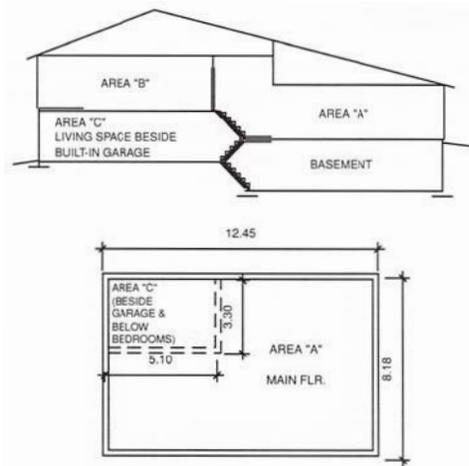
Area "B" 17.06 x 29.42 = 501.91 ft²

Area "C" 17.06 x 29.42 = 501.91 ft²

**TOTAL LIVING AREA =
1,641.84 ft²**

EXAMPLE 11 ~ THREE LEVEL SPLIT WITH BUILT-IN GARAGE

Although Area C (living space beside the garage) does not have a crawl space area or basement beneath, this area is considered to be liveable floor area as it is above grade. Living area levels should be Areas A, B, and C.



METRIC

Area "A" 8.18 x 7.35 = 60.12 m²

Area "B" 8.18 x 5.10 = 41.72 m²

Area "C" 3.30 x 5.10 = 16.83 m²

**TOTAL LIVING AREA =
118.67 m²**

IMPERIAL

Area "A" 26.83 x 24.11 = 646.87 ft²

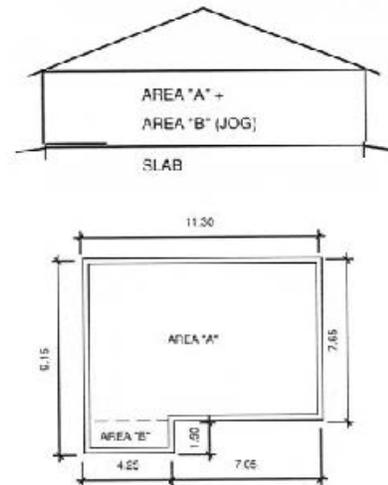
Area "B" 26.83 x 16.73 = 448.87 ft²

Area "C" 10.82 x 16.73 = 181.02 ft²

**TOTAL LIVING AREA =
1,276.76 ft²**

EXAMPLE 12 ~ ONE STOREY WITH CONCRETE SLAB FOUNDATION

There is no basement in this design, measure exterior length times width. All liveable floor area is above grade.



METRIC

Area "A" 11.30 x 7.65 = 86.45 m²

Area "B" 4.25 x 1.50 = 6.38 m²

**TOTAL LIVING AREA =
92.83 m²**

IMPERIAL

Area "A" 37.06 x 25.09 = 929.84 ft²

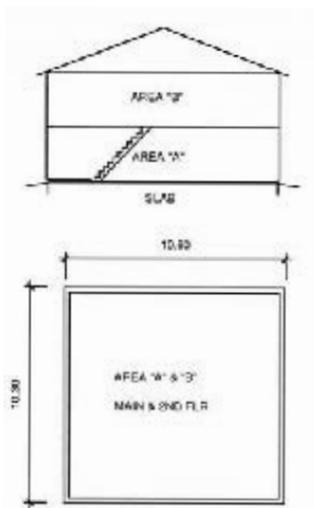
Area "B" 13.94 x 4.92 = 68.58 ft²

**TOTAL LIVING AREA =
998.42 ft²**

EXAMPLE 13 ~ BI-LEVEL OR TWO STOREY ON SLAB FOUNDATION (MARITIME STYLE)

In the Maritimes, bi-levels are the same as two stories built on slab. Hence both levels have finished living areas.

There is no basement in this design, measure exterior length times width.



METRIC

Area "A" 10.30 x 10.60 = 109.18 m²

Area "B" 10.30 x 10.60 = 109.18 m²

**TOTAL LIVING AREA =
218.36 m²**

IMPERIAL

Area "A" 33.78 x 34.77 = 1,174.53 ft²

Area "B" 33.78 x 34.77 = 1,174.53 ft²

**TOTAL LIVING AREA =
2,349.06 ft²**

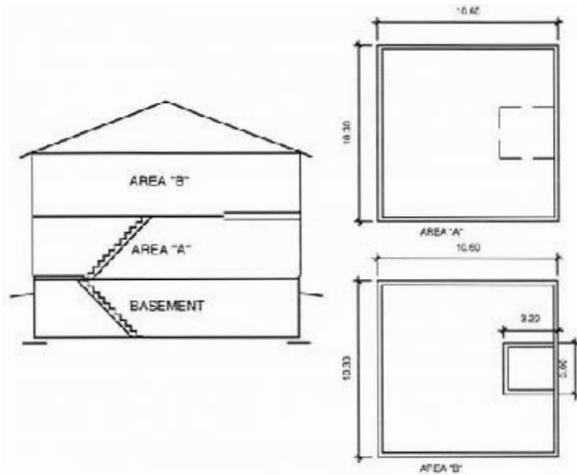
EXAMPLE 14 ~ ONE, ONE AND ONE-HALF STOREY, AND TWO STOREY WITH PART BASEMENT

Measure all liveable floor area above grade, see Examples 1, 2, and 7.

EXAMPLE 15 ~ TWO STOREY WITH OPEN FOYER TO SECOND LEVEL

Measure length times width of Area A foyer only. Open space on Area B is not considered liveable floor area.

However, should Area B have a loft area extending into open air space, length times width of loft should be calculated and considered in overall liveable floor area.



METRIC

Area "A" $10.30 \times 10.60 = 109.18 \text{ m}^2$

Area "B" $10.30 \times 10.60 = 109.18 \text{ m}^2$

SUBTOTAL =
218.36 m²

LESS FOYER
 $3.00 \times 3.20 = 9.60 \text{ m}^2$

TOTAL LIVING AREA =
208.76 m²

IMPERIAL

Area "A" $33.78 \times 34.77 = 1,174.53 \text{ ft}^2$

Area "B" $33.78 \times 34.77 = 1,174.53 \text{ ft}^2$

SUBTOTAL =
2,349.06 ft²

LESS FOYER
 $9.84 \times 10.50 = 103.32$
ft²

TOTAL LIVING AREA =
2,245.74 ft²

COMMERCIAL PROPERTY MEASUREMENT

When measuring commercial property, there are standard unvarying procedures that must be utilized when endeavouring to arrive at a value.

Practitioners are reminded to ensure their work is in accordance with the jurisdictional requirements of the property being measured.

CONDOMINIUM UNIT

Different jurisdictions often have specific legislation, regulations, and conventions related to condominium units. Prior to any condominium-related work, appraisers should carefully review all relevant documentation that relates to condominiums in the relevant jurisdiction. Where possible the condominium plan should be used to estimate the area of the unit.

Generally, livable area is defined as length multiplied by width of interior walls, excluding exterior balconies and storage areas which are not within the unit.

An adjustment up to 30 cm (one foot) may be added to the interior dimension to account for thickness of exterior walls. For interior walls that are shared with another unit, or located between the unit and common areas such as corridors, either the interior finish of the wall or the center line of the partition wall may be used, depending on the jurisdiction - the relevant definition of "unit" should be referenced for consistency purposes.

Storage areas within the condominium would be included in the measurements but storage space located outside the suite would not be part of the liveable area.

ABOVE OR BELOW GRADE RENTABLE AREA OF A SINGLE TENANCY FLOOR

Determined by measuring to the inside finish of permanent outside building walls. In instances where the outer building wall is 50% glass, measure to the glass line. Rentable space reflects all area within outside walls, excluding stairs, elevator shafts, fan rooms, janitor closet and such other space not available to a tenant in terms of furnishings and personnel and their enclosing walls. Washroom facilities which serve only that floor should be included as rentable space. Columns and projections which are essential to the building cannot be excluded.

ABOVE OR BELOW GRADE RENTABLE AREA OF A MULTIPLE TENANCY FLOOR

The total of all rentable space on said floor. By measuring to the inside finish of permanent outside building wall to the office side of corridors and/or permanent partitions that separate the premises from adjoining rentable space.

GROUND FLOOR RENTABLE STORE AREA

Measured from the building line (in the case of street frontage) and from the inner surface of corridor and other permanent partitions and to the centre of partitions that separate the premises from adjoining rentable space. Do not exclude vestibules within the building line or columns and projection which are essential to the building.

INDUSTRIAL AND WAREHOUSE BUILDINGS

Industrial and warehouse buildings (free-standing buildings with loading, parking and possible storage area around the building) should be measured by using outside perimeter wall to calculate the gross rentable space. In the case of multi-tenancy buildings, the floor space is measured from the outside wall to the centre of the party wall.

Office buildings present challenges for practitioners because they are measured differently in different regions. BOMA has established a method for measuring office building flooring area. This widely used method is described in BOMA's publication, Standard Method for Measuring Floor Area in Office Buildings, which is updated periodically. These standards include how to measure tenant amenities such as spacious entrance lobbies, conference centres, health clubs, day care facilities and retail spaces.

The topic of office building measurement is also covered in The Appraisal of Real Estate (Third Canadian Edition, 2010) co-published by AIC, the University of British Columbia and the Appraisal Institute.

ADDITIONAL INFORMATION

When entering bay windows, no consideration is given to extending space beyond the building line. Referencing a building's blueprints may provide you with a better understanding on how the original measurements were calculated.

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Appraisal Institute of Canada

403-200 Catherine Street, Ottawa, ON K2P 2K9 and change web address to www.AICanada.ca

(613) 234-6533 • (613) 234-7197 (fax) • info@aicanada.ca • www.aicanada.ca

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