

ONLINE SESSION 01
ARCH 202-04 Hathaway
Wednesday
3/25/20

TURN ON THE RECORDING!

WEEK 1

3/23

INTRO & SITE CONSTRAINTS

PROGRAMS

WEEK 2

3/30

& SYSTEMS

(DRAW A REAL BUILDING)

WEEK 3

4/6

PIN-UP

FACADE & ENVELOPE

WEEK 4

4/13

VIEWS, DIAGRAMS & DRAWINGS (*PRODUCTION*)

WEEK 5

4/20

PIN-UP

PRESENTATION (*PRODUCTION*)

4/27

REVIEW

WEEK 1

3/23 **INTRO**
DUE: N/A
IN-CLASS: ZONING
ASSIGN: ARCH. PRECEDENTS

WEEK 2

3/30 **DESK CRITS**
DUE: PLANS, SECTIONS, 3D
IN-CLASS: STRUCTURE
ASSIGN: STRUCT. PRECEDENTS

WEEK 3

4/6 **GROUP PIN-UP**
DUE: PLANS, ELEVATIONS, 3D,
SUSTAINABILITY SECTION
ASSIGN: SITE ELEV'S

WEEK 4

4/13 **DESK CRITS**
DUE: SECTIONS, 3D,
TECHNICAL SECTION
IN-CLASS: STORYTELLING

WEEK 5

4/20 **PIN-UP**
MOCK REVIEW
DUE: EVERYTHING (DRAFT)

4/27 **FINAL**
REVIEW

3/25 **DESK CRITS**
DUE: ARCH. PRECEDENTS, DRAW.
IN-CLASS: LIGHT & AIR
ASSIGN: 3D MASSING MODEL

4/1 **GROUPS**
DUE: STRUCT. PRECEDENTS
IN-CLASS: BUILDING SYSTEMS
ASSIGN: PLANS

4/8 **DESK CRITS**
DUE: SITE ELEV'S
IN-CLASS: SITE & CONTEXT
ASSIGN: FAÇADE PRECEDENTS

4/15 **GROUPS**
DUE: 2D DRAWINGS
IN-CLASS: PEER REDLINES
ASSIGN: 3D VIEWS

4/22 **DESK CRITS**
DUE: PRESENTATION TEXT
IN-CLASS: PRESENTING

3/27 **GROUPS**
DUE: 3D MASSING MODEL
IN-CLASS: CIRCULATION & EGRESS
ASSIGN: PROGRAM PRECEDENTS

4/3 **DESK CRITS**
DUE: PROGRAM PRECEDENTS
IN-CLASS: UNIT PLANS
ASSIGN: N/A

4/10 **GROUPS**
DUE: FAÇADE SKETCHES
IN-CLASS: SITE & CONTEXT
ASSIGN: DIAGRAMS

4/17 **DESK CRITS**
DUE: 3D VIEWS, DIAGRAMS
IN-CLASS: RENDERING
ASSIGN: N/A

4/24 **MOCK PRESENT.**
DUE: EVERYTHING
IN-CLASS: PRESENTATIONS

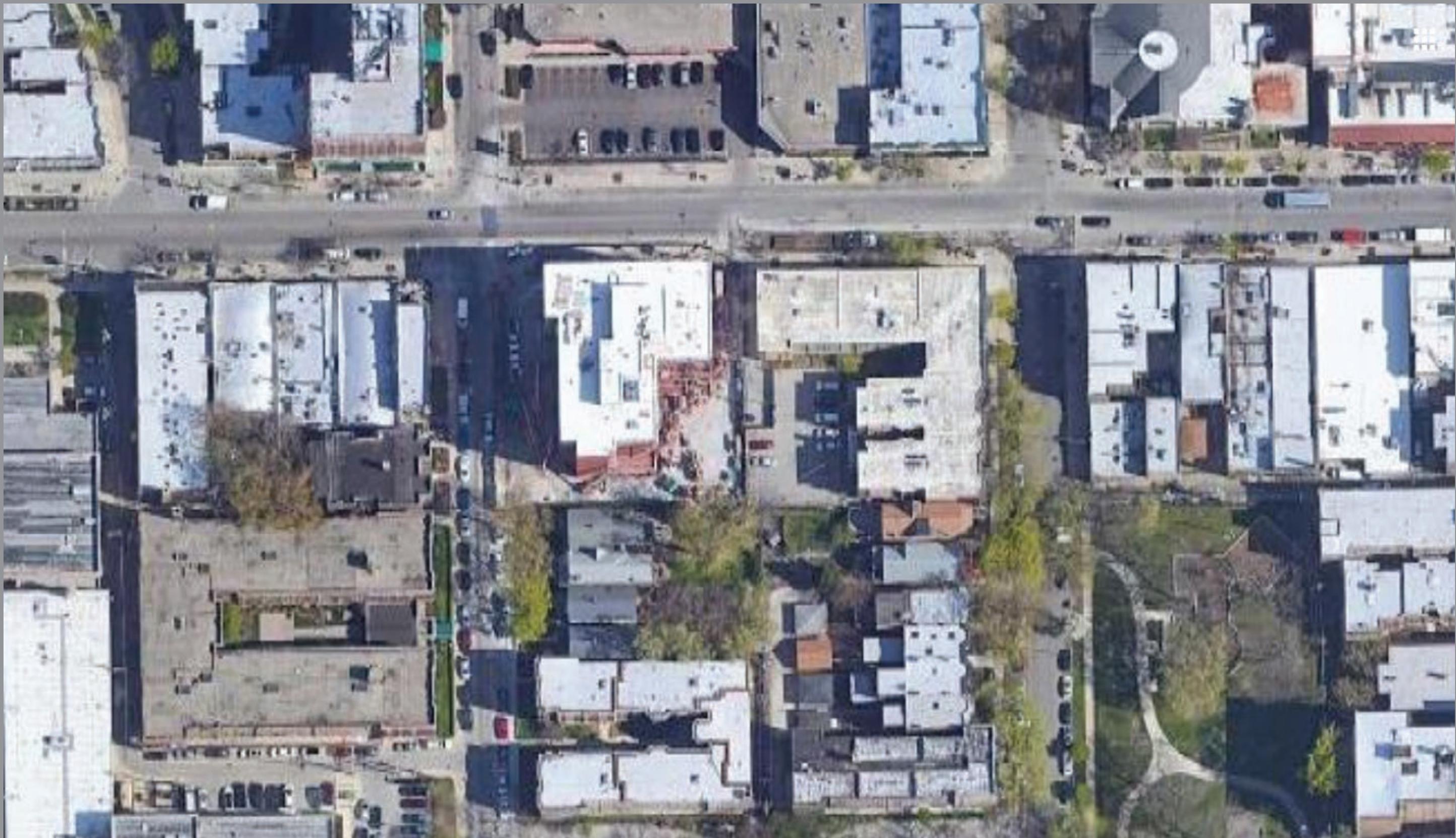
TODAY

1. DISCUSS ARCHITECTURAL PRECEDENTS
2. LECTURE: LIGHT & AIR
3. ASSIGN: 3D MASSING MODELS
4. IN-CLASS: LIGHT & AIR CODE SKETCHES
5. DESK CRITS

SITE CONSTRAINTS: LIGHT & AIR

SETBACKS & OPEN SPACE

ZONING CODE



LIGHT & AIR BUILDING CODE



FIRE BUILDING CODE



WHAT ARE YOUR REQUIREMENTS?

BUILDING CODE Constraints:

Provide housing for 34-36 residents. Students shall determine the groups and how they live together.

Provide and define two (02) additional Communal Typologies. One large, one small; one mind, one body oriented.

Minimum of four (04) stories.

Utilize Mass Timber Structural Framing

Greenspace equal to 50% percent of your lot size (roof, terrace, balcony, at ground).

Provide a Green Roof.

Provide six (06) Underground Parking Spaces accessible via ramp. Five standard + one ADA space.

Provide exit Stairways.

Provide an Elevator.

Bicycle Storage – one storage provision per resident.

Provide separate Water and Electrical Utility Rooms.

FIGURE THEM OUT

1. CHICAGO BUILDING CODE CONTAINS PROVISIONS STIPULATING MINIMUM OPENING (GLAZING AND DOORS) SIZES FOR HABITABLE ROOMS AND EXTERIOR OPEN DIMENSIONS TO MAKE SURE THAT LIGHT & AIR REACH THOSE OPENINGS

GROUP 1 (FIRST HALF DESK CRITS) DURING THE SECOND HALF OF STUDIO PLEASE REVIEW THE RELEVANT CODE SECTIONS AND MAKE DIAGRAMS OF THE REQUIREMENTS WE CAN USE AS WE DEVELOP OUR PROJECTS THIS SEMESTER.

I WILL CHECK IN WITH YOU WHILE YOU WORK.

https://www.chicago.gov/city/en/depts/bldgs/provdrs/bldg_code/svcs/chicago_buildingcodeonline.html

<https://codes.iccsafe.org/content/CHIBC2019>

FIGURE THEM OUT

2. CHICAGO BUILDING CODE CONTAINS ALSO CONTAINS PROVISIONS STIPULATING MAXIMUM OPENING (GLAZING AND DOORS) SIZES AND LOCATIONS TO MAKE SURE THAT FIRE DOES NOT SPREAD RAPIDLY TO ADJACENT BUILDINGS

GROUP 2 (SECOND HALF DESK CRITS) DURING THE FIRST HALF OF STUDIO PLEASE REVIEW THE RELEVANT CODE SECTIONS AND MAKE DIAGRAMS OF THE REQUIREMENTS WE CAN USE AS WE DEVELOP OUR PROJECTS THIS SEMESTER.

I WILL CHECK IN WITH YOU WHILE YOU WORK.

https://www.chicago.gov/city/en/depts/bldgs/provdrs/bldg_code/svcs/chicago_buildingcodeonline.html

<https://codes.iccsafe.org/content/CHIBC2019>

FOR EVERYONE

CHAPTER 2

DEFINITIONS AND MEASUREMENTS

FIRE SEPARATION DISTANCE. The horizontal distance measured from the building face or element to one of the following:

1. The closest *abutting property line*.
2. The far boundary of a *public way* adjoining the *lot*.
3. An imaginary line between two *buildings* on the same *lot*.

The distance shall be measured at right angles from the face of a wall or edge of a building element.

FIRE WALL. A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

FIRE WINDOW ASSEMBLY. A window constructed and glazed to give protection against the passage of fire.

HABITABLE SPACE. A space in a *building* for recreation, working, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, incidental storage or utility spaces and similar areas are not considered habitable spaces.

OPENING PROTECTIVE. A fire door assembly, fire shutter assembly, fire window assembly or glass-block assembly in a fire-resistance-rated wall or partition.

PROPERTY LINE. As defined in Chapter 17-17 of the *Chicago Zoning Ordinance*.

Abutting property line. As defined in Chapter 17-17 of the *Chicago Zoning Ordinance*.

Front property line. As defined in Chapter 17-17 of the *Chicago Zoning Ordinance*.

Rear property line. As defined in Chapter 17-17 of the *Chicago Zoning Ordinance*.

Side property line. As defined in Chapter 17-17 of the *Chicago Zoning Ordinance*.

PUBLIC WAY. As defined in Chapter 17-17 of the *Chicago Zoning Ordinance*.

FOR GROUP 1

SECTION 1202 VENTILATION

14B-12-1202 The provisions of Section 1202 of IBC are adopted by reference with the following modifications:

Added Coun. J. 4-10-19, p. 100029.

1202.1 General. Every space intended for human occupancy shall be provided with natural *ventilation* in accordance with Section 1202.5, or mechanical *ventilation* in accordance with the *Chicago Mechanical Code*.

Exceptions:

1. Where the air infiltration rate in a *dwelling unit* is less than 5 air changes per hour where tested with a blower door at a pressure 0.2 inch w.c. (50 Pa) in accordance with the *Chicago Energy Conservation Code*, the *dwelling unit* shall be ventilated by mechanical means in accordance with Section 403 of the *Chicago Mechanical Code*.
2. In *dwelling units* in Group R-2, R-3, and R-5 occupancies, natural *ventilation* in accordance with Section 1202.5 shall be provided in all living, dining and sleeping rooms.
3. Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the *Chicago Mechanical Code*.
4. *Ambulatory care facilities* and Group I-2 occupancies shall be ventilated by mechanical means in accordance with the *Chicago Mechanical Code*.
5. Natural *ventilation* shall not be substituted for mechanical *ventilation* in rooms or spaces where mechanical *ventilation* is specifically required by the *Chicago Mechanical Code* or *Chicago Energy Conservation Code*.
6. *Ventilation* and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *Chicago Mechanical Code* or the *Chicago Fire Prevention Code* shall be provided as required by both codes.

SECTION 1204 LIGHTING

14B-12-1204 The provisions of Section 1204 of IBC are adopted by reference with the following modifications:

Added Coun. J. 4-10-19, p. 100029.

1204.1 General. Every space intended for human occupancy shall be provided with natural light in accordance with Section 1204.2 or shall be provided with artificial light in accordance with Section 1204.3.

Exceptions:

1. In *dwelling units* and *sleeping units* in Group R, I-1, and I-2 occupancies, all living, dining, and sleeping rooms shall be provided with natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.
2. In Group I-4 occupancies all rooms offering care for children under 2 years of age shall be provided with natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.
3. In Group E occupancies, all regular classrooms shall be provided with natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.

1204.2 Natural light. Where required, natural light shall be provided in accordance with Section 1204.2.1, 1204.2.2, 1204.2.3 or 1204.2.4. Openings shall comply with Sections 1204.2.5 and 1204.2.6.

1204.2.1 Direct natural light. The room shall be provided with exterior openings with a net glazed area of at least 8 percent of the floor area of the room.

1204.2.2 Adjoining spaces. For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where at least one-half of the area of the common wall is open and unobstructed and provides an opening of not less than 10 percent of the floor area of the interior room or 25 square feet (2.32 m²), whichever is greater. The net glazed area of exterior openings shall be at least 8 percent of the aggregate floor area.

1204.2.3 Remote rooms. A room without sufficient exterior openings is permitted to borrow natural lighting from an adjoining room that meets the requirements of Section 1204.2.1 if the remote room, adjoining room and exterior openings meet all of the following criteria:

1. The ceiling height in both the remote room and adjoining room shall be no less than 9 feet 4 inches (2844 mm) at the lowest point.
2. The top of the exterior glazing shall be no less than 9 feet (2743 m) above the finished floor.
3. The opening between the remote room and the adjoining room shall be parallel to the plane of the exterior glazed openings, as near as possible to the ceiling and either:
 - 3.1. If open and unobstructed, shall have an area at least 8 percent of the floor area of the remote room or 25 square feet (2.32 m²), whichever is greater.
 - 3.2. If equipped with transparent or translucent glazing, shall have a net glazed area at least 10 percent of the floor area of the remote room or 30 square feet (2.8 m²), whichever is greater.
4. The remote room shall be immediately adjacent to the adjoining room.
5. The net glazed area of exterior openings shall be at least 8 percent of the aggregate floor area of the adjoining room and remote room.

1204.2.5 Exterior openings. Exterior openings required by Section 1204.2 for natural light shall open directly onto a *public way* or a *yard* or *court* complying with Section 1205.

FOR GROUP 1

1205.1 General. This section shall apply to *yards* and *courts* adjacent to exterior openings that provide natural light or natural *ventilation*. Such *yards* and *courts* shall be on the same *lot* as the building. For purposes of this section, width shall be measured perpendicular to the plane of openings and length shall be measured parallel to the plane of openings.

1205.2 Yards. *Yards* shall be not less than 3 feet (914 mm) in width for an *exterior wall* not more than 40 feet (12.2 m) in height above the lowest floor receiving natural light or natural *ventilation* or *grade plane*, whichever is higher. Where the *exterior wall* exceeds 40 feet (12.2 m) in height, the minimum width of the *yard* shall be increased 2 inches (76 mm) for each 1 foot (305 mm) or fraction thereof in height up to a maximum width of 15 feet (4572 mm).

1205.3 Courts. *Courts* shall be classified as either *inner courts* or *outer courts* in accordance with Section 1205.3.1. Outer *courts* shall comply with Section 1205.3.2. Inner *courts* shall comply with Section 1205.3.3.

1205.3.1 Classification of courts. A *court* that meets either of the following criteria shall be classified as an *outer court*:

1. A *court* with at least 12% of its perimeter opening upon a *public way* or *yard* that is at least 15 feet (4572 mm) wide.
2. A *court* bounded by building walls no greater than 55 feet (16.8 m) in height opening upon a *yard* that is at least 3 feet (914 mm) wide. The length of an *outer court* meeting this criterion shall be not less than 150% of the horizontal dimension of required window openings that open upon the *court*.

A *court* that is not classified as an *outer court* shall be classified as an *inner court*.

1205.3.2 Outer courts. Outer *courts* shall be not less than 3 feet (914 mm) in width for an *exterior wall* not more than 40 feet (12.2 m) in height above the lowest floor receiving natural light or natural *ventilation* or *grade plane*, whichever is higher. Where the *exterior wall* exceeds 40 feet (12.2 m) in height, the minimum width of the *court* shall be increased 2 inches (76 mm) for each 1 foot (305 mm) or fraction thereof in height up to a maximum width of 15 feet (4572 mm). Openings on opposite sides of an *outer court* shall be separated by not less than 6 feet (1829 mm).

1205.3.3 Inner courts. Inner *courts* shall be not less than 6 feet (1829 mm) in width for an *exterior wall* not more than 40 feet (12.2 m) in height above the lowest floor receiving natural light or natural ventilation or *grade plane*, whichever is higher. Where the *exterior wall* exceeds 40 feet (12.2 m) in height, the minimum width of the *inner court* shall be increased 4 inches (102 mm) for each 1 foot (305 mm) or fraction thereof in height up to a maximum width of 15 feet (4572 mm). For irregularly-shaped *inner courts*, the average width shall be at least as great as the minimum width required by this section and the width shall not be less than 5 feet (1524 mm) at any point. The length of *inner courts* shall be not less than 3 feet (914 mm) and not less than 150% of the horizontal dimension of required window openings

FOR GROUP 2

705.8 Openings. Openings in *exterior walls* shall comply with Sections 705.8.1 through 705.8.6.

705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8(1) or 705.8(2), as applicable, based on the *fire separation distance* of each individual story. ||

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane where the wall faces one of the following:
 - 1.1. A street and has a *fire separation distance* of more than 15 feet (4572 mm).
 - 1.2. An unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *Chicago Fire Prevention Code*.
2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.

NOTE: FOR YOUR PROJECTS WE WILL ASSUME THAT ALL WINDOWS ARE UNPROTECTED OPENINGS. SOMEWHERE ON YOUR DIAGRAMS YOU CAN NOTE THAT WHAT A PROTECTED OPENING IS, BUT YOU ONLY NEED TO ADDRESS UNPROTECTED OPENINGS.

FOR GROUP 2

TABLE 705.8(1)
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON
FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

| FIRE SEPARATION DISTANCE (feet) | DEGREE OF OPENING PROTECTION | ALLOWABLE AREA^a |
|--|---|-----------------------------------|
| 0 to less than 3 ^{b, c, k} | Unprotected, Nonsprinklered (UP, NS) | Not Permitted ^k |
| | Unprotected, Sprinklered (UP, S) ⁱ | Not Permitted ^k |
| | Protected (P) | Not Permitted ^k |
| 3 to less than 5 ^c | Unprotected, Nonsprinklered (UP, NS) | Not Permitted |
| | Unprotected, Sprinklered (UP, S) ⁱ | 15% |
| | Protected (P) | 15% |
| 5 to less than 10 ^c | Unprotected, Nonsprinklered (UP, NS) | 10% |
| | Unprotected, Sprinklered (UP, S) ⁱ | 25% |
| | Protected (P) | 25% |
| 10 to less than 15 ^{c, g} | Unprotected, Nonsprinklered (UP, NS) | 15% |
| | Unprotected, Sprinklered (UP, S) ⁱ | 45% |
| | Protected (P) | 45% |
| 15 to less than 20 ^{f, g, j} | Unprotected, Nonsprinklered (UP, NS) | 25% |
| | Unprotected, Sprinklered (UP, S) ⁱ | 75% |
| | Protected (P) | 75% |
| 20 to less than 25 ^g | Unprotected, Nonsprinklered (UP, NS) | 45% |
| | Unprotected, Sprinklered (UP, S) ⁱ | No Limit |
| | Protected (P) | No Limit |
| 25 to less than 30 ^g | Unprotected, Nonsprinklered (UP, NS) | 70% |
| | Unprotected, Sprinklered (UP, S) ⁱ | No Limit |
| | Protected (P) | No Limit |
| 30 or greater | Unprotected, Nonsprinklered (UP, NS) | No Limit |
| | Unprotected, Sprinklered (UP, S) ⁱ | No Limit |
| | Protected (P) | No Limit |

For SI: 1 foot = 304.8 mm.

UP, NS = Unprotected openings in *buildings* not equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

UP, S = Unprotected openings in *buildings* equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

P = Openings protected with an opening protective assembly in accordance with Section 705.8.2.