

WELCOME TO: ARCH 2430, BUILDING TECHNOLOGY IV



Photo © 2010 Erin Crumpacker In Construction

HIGH LINE 23 BY NEIL M DENARI ARCHITECTS

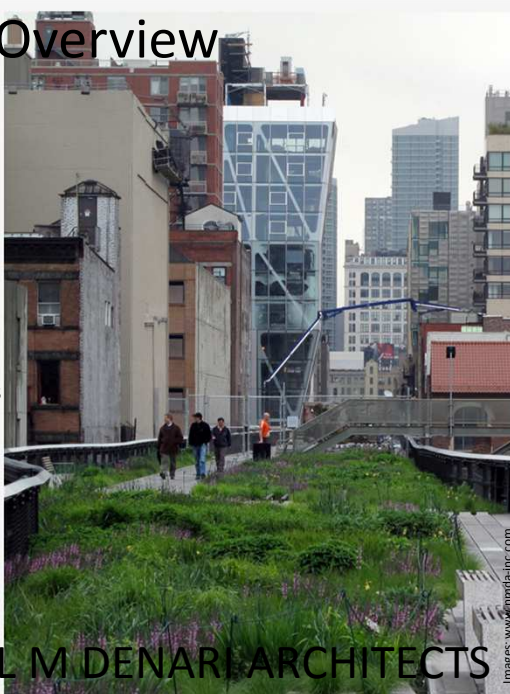
Prepared by; Alexander Aptekar ED, Barbara Mishara © 2012



Class Overview

Week Two: Class 03

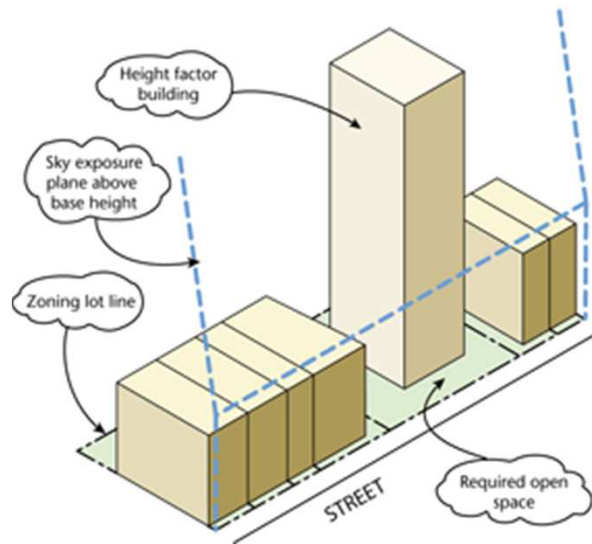
- Zoning Review
 - History
 - Project Concerns
 - Resources
- Site Considerations
- Project Site
- Zoning Check
- Setbacks and massing requirements
- Class Assignment
- Site Plan
 - Maximum Zoning Envelope
 - Individual Massing Studies
- Submittals:
 - Massing studies
 - Concrete research draft



HIGH LINE 23 BY NEIL M DENARI ARCHITECTS

View of South Facade from High Line
06.15.10 In Construction
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Site Considerations and Zoning



ARCH 2430

http://www.nyc.gov/html/dcp/html/zone/zh_resdistricts.shtml

About Zoning

Zoning shapes the city. Compared with architecture and planning, zoning has a relatively short history as a means of organizing the way land is used. Yet zoning determines the size and use of buildings, where they are located and, in large measure, the density of the city's diverse neighborhoods. Along with the city's power to budget, tax, and condemn property, zoning is a key tool for carrying out planning policy. New York City has been a pioneer in the field of zoning since it enacted the nation's first comprehensive zoning ordinance in 1916.

Department of City Planning

<http://www.nyc.gov/html/dcp/html/zone/zonehis.shtml>

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STRUCTURE OF THE ZONING RESOLUTION

Articles I - VII - Zoning Regulations.

- Article II - Residential Districts
use, bulk, off-street parking and loading;
Inclusionary Housing; urban design guidelines;
Quality Housing program. (§21-00 to 28-53)
- Article III - Commercial Districts
use, bulk, off-street parking and loading; urban
design guidelines. (§31-00 to 37-06)
- Article IV - Manufacturing Districts
use, bulk, off-street parking and loading.
(§41-00 to 44-585)



Articles VIII - XII - Special District Regulations

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

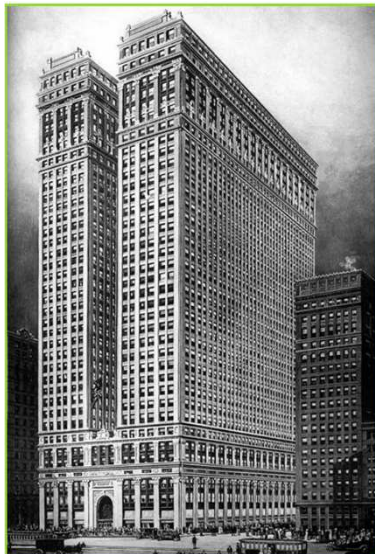
<http://www.nyc.gov/html/dcp/html/subcats/zoning.shtml>

The screenshot displays the NYC Department of City Planning website. The main content area is titled "Zoning" and features several sections:

- ZoLa - Zoning and Land Use Application:** A section explaining how to use the Department of City Planning's ZoLa application to find zoning for a property.
- Zoning Text:** A section stating that the zoning text consists of 13 articles, with Articles I through VII covering general regulations and Articles VIII through XIII covering special purpose districts.
- Zoning Maps:** A section explaining that the 126 New York City zoning maps show the locations and boundaries of zoning districts, special purpose districts, and commercial overlay districts.
- Zoning Districts:** A section summarizing regulations for each district, including typical building forms and special purpose districts.
- Zoning Tools:** A section summarizing specific land use initiatives that address particular policy goals, such as the Inclusionary Housing Program and the Fresh Food Program.
- About Zoning:** A section explaining that zoning determines the size and use of buildings, where they are located, and in large measure, the densities of the city's diverse neighborhoods.

On the right side of the page, there is a "Zoning Information Desk" section with contact information for phone, in-person, and email inquiries, along with a "Zoning Handbook" section that offers an updated and expanded plain language guide to NYC zoning regulations.

STRUCTURE OF THE ZONING RESOLUTION



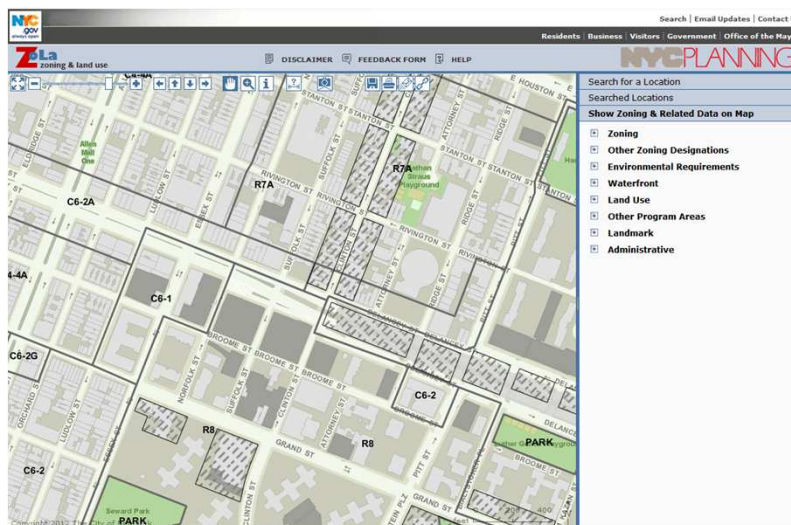
Equitable Life Building 537ft tall (40 story)

- Zoning District
- Use Use Groups
Signs
- Bulk: Floor Area Ratio (FAR)
Maximum Lot Coverage
Yard Regulations
Height & Setback Regulations
Courts
- Parking and Loading
- Other

ZONING

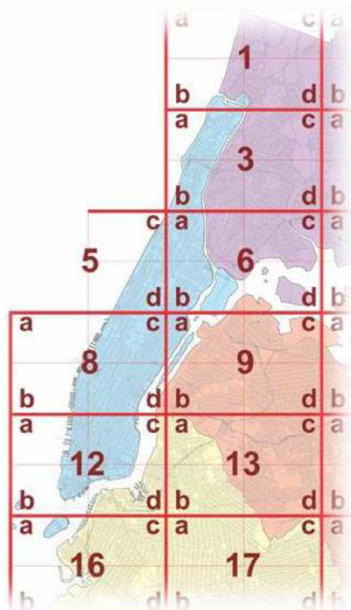
From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

ZONING MAPS



<http://gis.nyc.gov/doitt/nycitymap/template?applicationName=ZOLA>

ZONING MAPS



The 126 City Planning base maps are made up of 35 sections, each identified by a number from 1 to 35.

Zoning maps are further divided into four quarters, each identified by letter: a, b, c or d.

Each zoning section map covers approximately 8,000 feet (N-S) by 12,500 feet (E-W)

<http://www.nyc.gov/html/dcp/html/zone/zmapintr.shtml>

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

ZONING MAPS



- Each zoning district is designated by a letter indicating the general use classification -- **R** for Residence, **C** for Commercial and **M** for Manufacturing -- followed by a number.

- Heavy solid lines indicate the boundaries of zoning districts. Certain districts (such as Special Districts or C1 or C2 districts) are mapped as overlays, modifying-but not totally supplanting-the controls of the underlying district.

- Article VII, Chapter 6 (§76-00 through 76-148) establishes the location of district boundaries.

ZONING

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

ZONING DISTRICTS



In **R** districts, the first number indicates permitted bulk and parking.

Most **C** districts have two numbers in their designation:

- the first number indicates permitted uses
- the second number indicates permitted bulk, required parking or both

All **M** districts have two numbers in their designation:

- the first number indicates permitted uses
- the second number, after a hyphen, indicates permitted bulk, required parking or both ZONING

SPECIAL PURPOSE DISTRICTS

Have superimposed on underlying districts.

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

USE GROUPS

The uses listed in each use group have common functional or nuisance characteristics.

Use Groups 1 - 2	residential
Use Groups 3 - 4	community facilities
Use Groups 5 - 9	local retail and services
Use Groups 10 - 12	regional shopping centers/amusement
Use Groups 13 - 15	waterfront/recreation uses
Use Group 16	heavy automotive service
Use Groups 17 - 18	manufacturing

The text identifies which use groups are permitted in each zoning district.

Index of Uses in Appendix A of the Zoning Resolution

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

BULK



HIGH LINE 23 archdaily.com

The maximum size (or bulk) of a building on a lot is determined by the floor area ratio (FAR) assigned to each zoning district.

DETERMINE AREA OF ZONING LOT

- The FAR expresses the relationship between the amount of usable floor area permitted in a building and the area of the lot on which the building stands.

CALCULATE PERMITTED FLOOR AREA

- A building can contain FAR to the lot area multiplied by FAR of the district in which the lot is located.

BONUSES

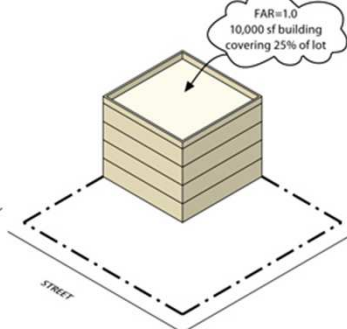
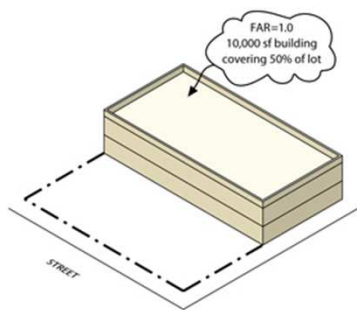
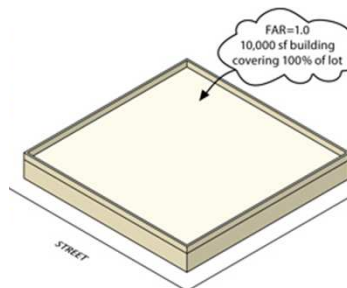
- In certain districts, the basic FAR permitted on a lot can be increased if certain public amenities are provided

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

BULK

Floor Area Ratio (FAR)

For example, on a 10,000 square foot zoning lot in a district with a maximum FAR of 1.0, the floor area on the zoning lot cannot exceed 10,000 square feet.



From, <http://www.nyc.gov/html/dcp/html/zone/glossary.shtml#floor>

BULK



HIGH LINE 23 www.nmids-inc.com

OPEN SPACE RATIO

- In certain residence districts, residential development must provide open space on the zoning lot (§27-14).
- In some districts, the amount of open space required is determined by the open space ratio (OSR) which expresses the percentage of total floor area of a building that must be provided as open space on a development parcel.
- In other residence districts, open space is determined by yard regulations or by limiting development to a maximum lot coverage.

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

BULK



HIGH LINE 23 nyc-architecture.com

MAXIMUM LOT COVERAGE

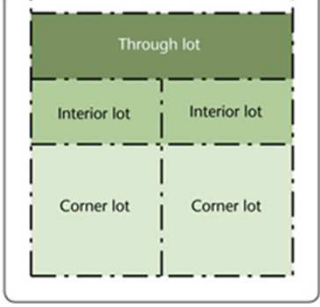
- Lot coverage is that portion of a zoning lot covered by a building or any part of a building.
- Maximum allowable lot coverage is determined by a combination of yard requirements and any urban design regulations that may be Applicable.

Quality Housing Program is a set of zoning regulations in R6 - R10 Districts and their commercial equivalents

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

BULK

YARDS (COMMERCIAL DISTRICTS)



The diagram shows a grid of lots. A 'Through lot' is at the top, spanning the width of the block. Below it are two 'Interior lots' side-by-side. At the bottom are two 'Corner lots' side-by-side. The block is bounded by 'STREET' on the left and right sides.

Front yards are not required in C Districts (§33-24).

- Some Special Districts require sidewalk widenings which in effect locates the street wall at a specified distance from the lot line.

Side yards are not required in C Districts. (§33-25)

- If a side yard is provided, certain dimensional requirements must be met.

Rear yard of minimum 20' depth is required in all C Districts. (§33-26)

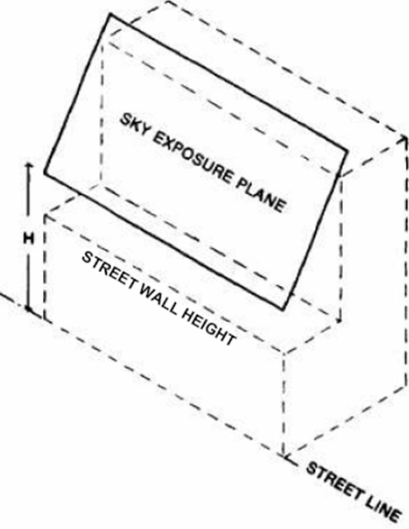
- Corner lots are exempted from rear yard requirements
- Shallow lots are permitted reductions in rear yard minimums (§33-27).
- Through lots must provide rear yard equivalents in some C Districts (§33-28)

Permitted obstructions are listed in §33-23

From, <http://www.nyc.gov/html/dcp/html/zone/glossary.shtml#floor> From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

BULK

HEIGHT AND SETBACK



The diagram shows a 3D perspective of a building. A dashed line represents the 'STREET LINE'. A vertical line from the street line to the top of the building is labeled 'STREET WALL HEIGHT'. An inclined dashed line starting from the street line and extending upwards is labeled 'SKY EXPOSURE PLANE'. The building's facade is shown as a solid line that stays below the sky exposure plane.

In most medium and higher density districts:

- A building's front wall at the street line is generally limited to a specified height or number of stories -- street wall height -- above which the building face must setback a specified distance.
- Above the street wall height, a building is required to set back behind a theoretical inclined plane -- the sky exposure plane -- which cannot be penetrated by the building.

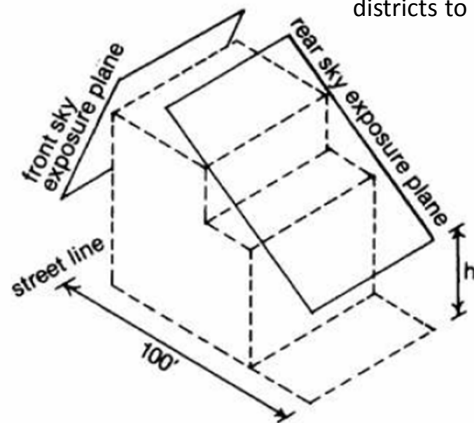
From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

BULK

HEIGHT AND SETBACK

In most medium and higher density districts:

- A rear sky exposure plane is required in some districts to provide greater light and air.



- Exception: a tower rising without setback which covers only 40% of its lot is permitted to penetrate the sky exposure plane because its compensating slender profile provides more open space at the street level.

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006

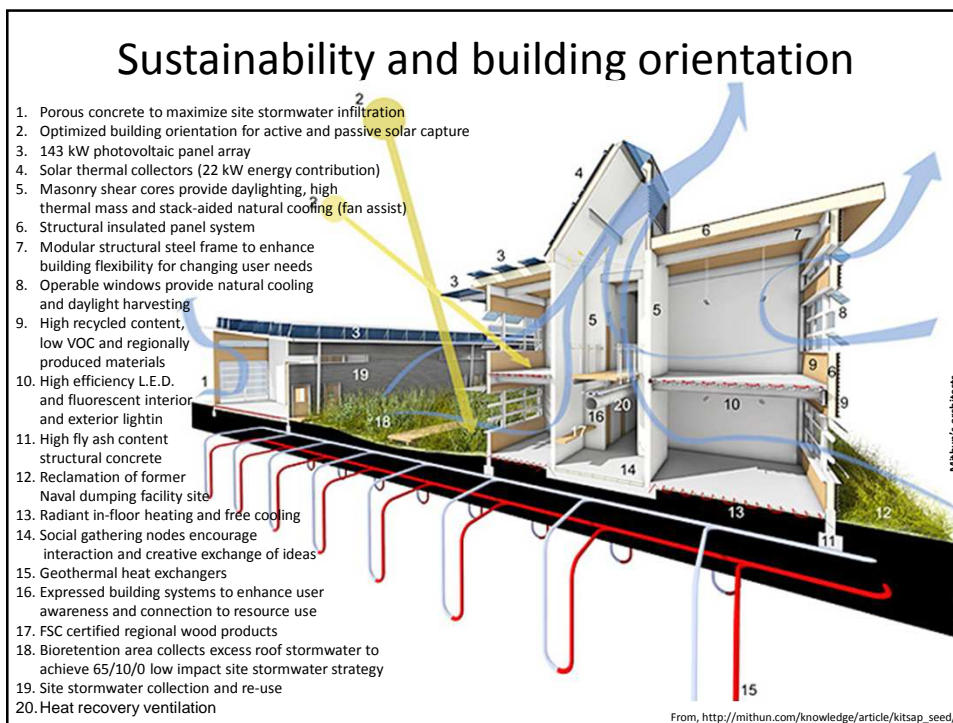
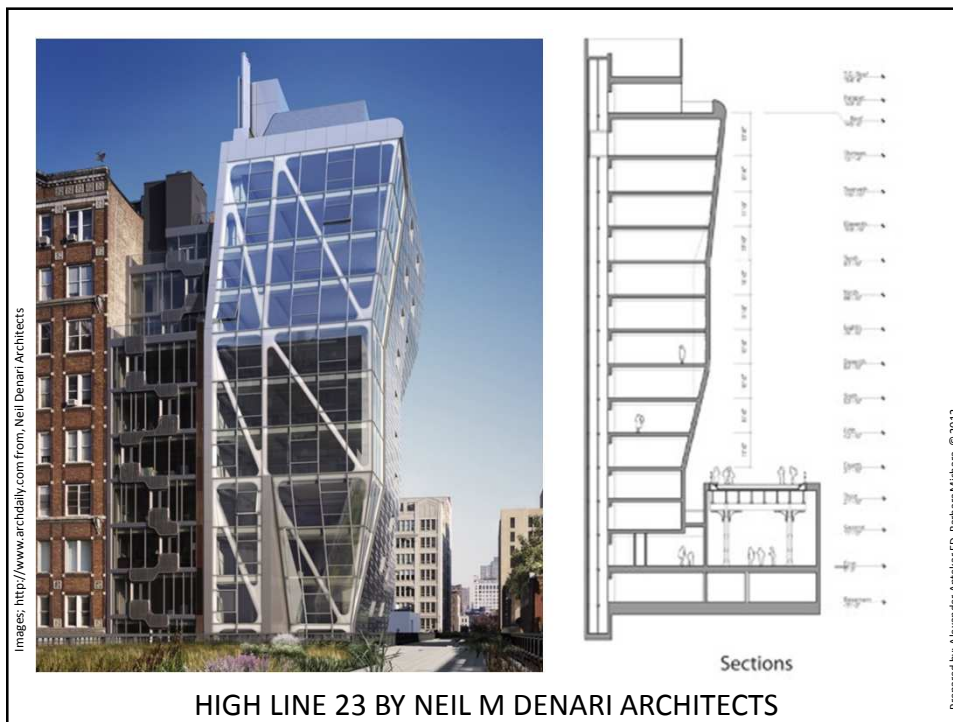
PARKING



HIGHLINE23.nyc-architecture.com

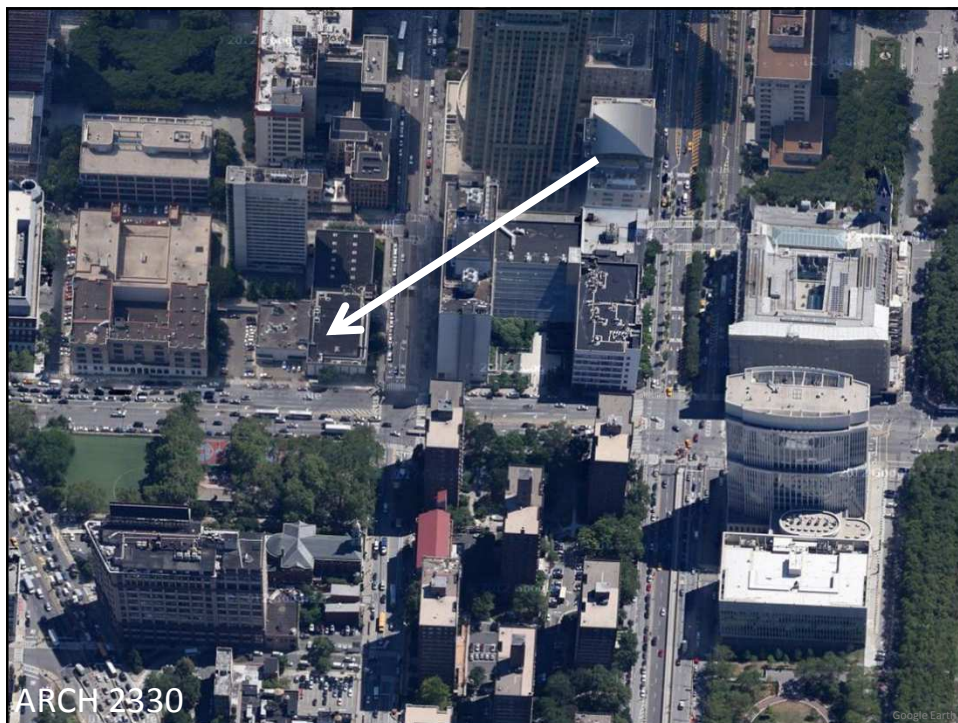
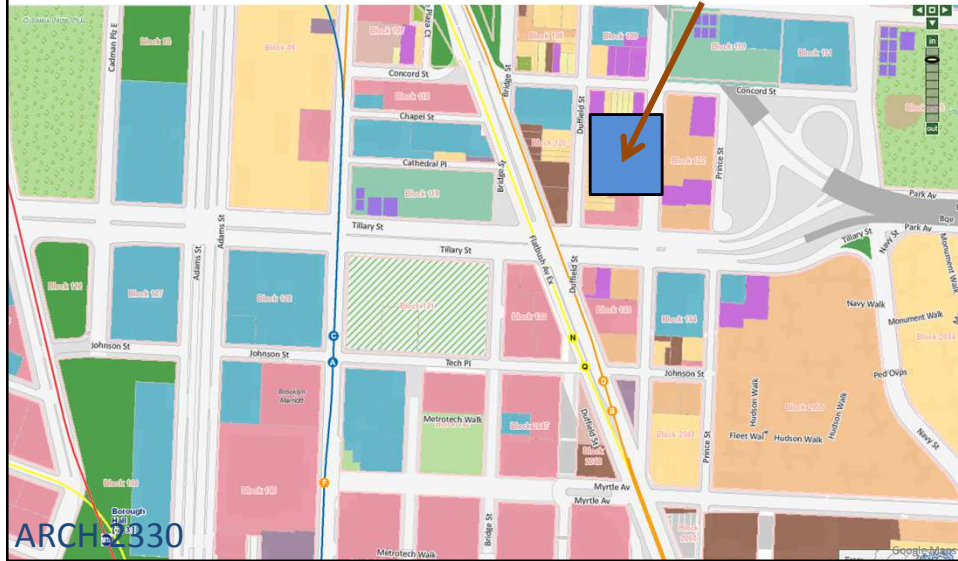
- Most new developments require off-street parking.
- Curb cut sizes and locations are regulated
- Off-street loading berths for commercial and manufacturing uses may be required.
- Developments of small sizes may be exempt from parking requirements
- Parking is required for most commercial and community facility uses in all commercial districts except those located in Lower/Mid-Manhattan and Downtown Brooklyn.

From, "Zoning 101" John Lee & Fatma Amer, DOB 25 May 2006



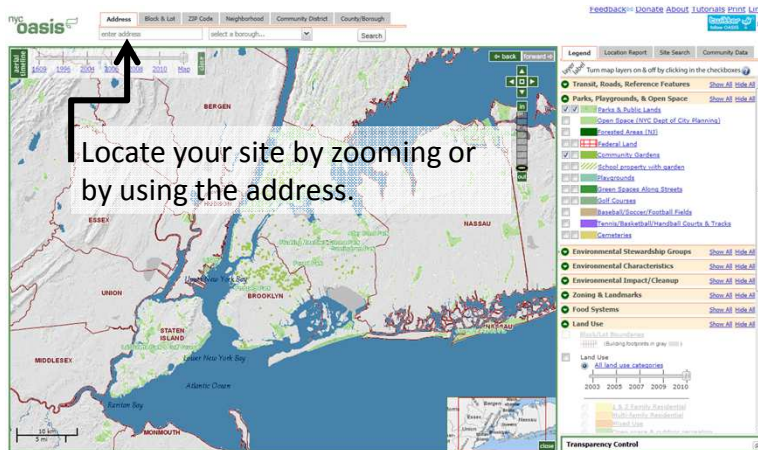
Course project and development process

Location: 285 Jay Street, Brooklyn
(between Tillery Street and Tech Place)



Site boundaries

Tax lots private a good source of site boundaries. You can use the OASIS website it access to maps and contextual information.



<http://www.oasisnyc.net>

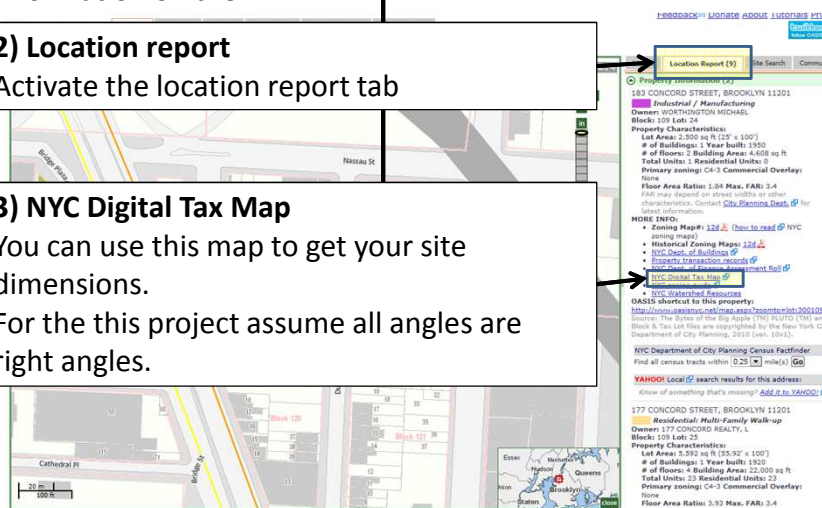
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Site boundaries

1) Find and select the lots used in the project to access more information on them.

2) Location report
Activate the location report tab

3) NYC Digital Tax Map
You can use this map to get your site dimensions.
For the this project assume all angles are right angles.



<http://www.oasisnyc.net>

Prepared by: Alexander Apekar/ED, Barbara Mishra © 2012



Class assignment

Your team as a whole should evaluate your zoning documentation. Double check its accuracy and ensure that you have all the required information to create detailed zoning sheets. You should create a zoning file in a Word document that contains notes and information on your zoning requirements and largest possible building envelope. This documentation should quote the sections of the zoning texts in which you get the data from.

Be sure to use as reference the New York City zoning diagram [<http://www.nyc.gov/html/dob/downloads/pdf/zd1.pdf>] and the zoning diagram guide [http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf].

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Class assignment

Each student will need to develop their own maximum building envelope area. This diagram will show how far the building is allowed to extend and rise according to the sites zoning requirements. This massing diagram should be completed as a massing family and Revit

Each student will develop a massing diagram showing the extents of the building as designed. The student team member each need interpret the project files to develop there on version of the massing of their project. Once these design massing's diagrams are completed they can be compared to the maximum allowable envelope.

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Class assignment

Each team member must then propose at least two different massing design options. These options must be based on the project design and must fit within the zoning boundary and maximize the usable FAR.

Please note: that next class developing parametric massing models to ensure a variety of massing options that maximize the buildings size in relationship to its FAR and massing.

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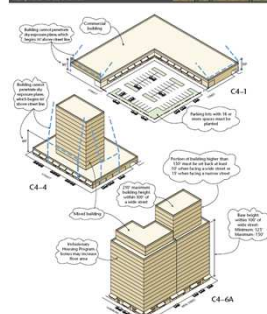
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Zoning Analysis

Your client is a University and they are requesting a building with a footprint of extending out to the property lines.

Keep your zoning calculations you will need them for your project documentation in a Word document.

You will also use your results to your site plans.



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http://gis.nyc.gov/dot/dtm/mapviewer.jsf?tbl=500100024
http://www.nyc.gov/html/fcp/html/zoning/zh_c4.shtml

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Documentation

Open a new project here

Open Browser window and the "US Imperial" folder.

Use the "architectural template.rte" as your template

Open

OK

Autodesk®

Autodesk® Revit® Architecture

Advanced Sample Project

Documentation

1) From the tools ribbon select the "massing & site" tab

2) Use property line tool to draw

3) Select the "create by sketching" option on the pop up window

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Documentation

Note) The new ribbon opens with drawing tools

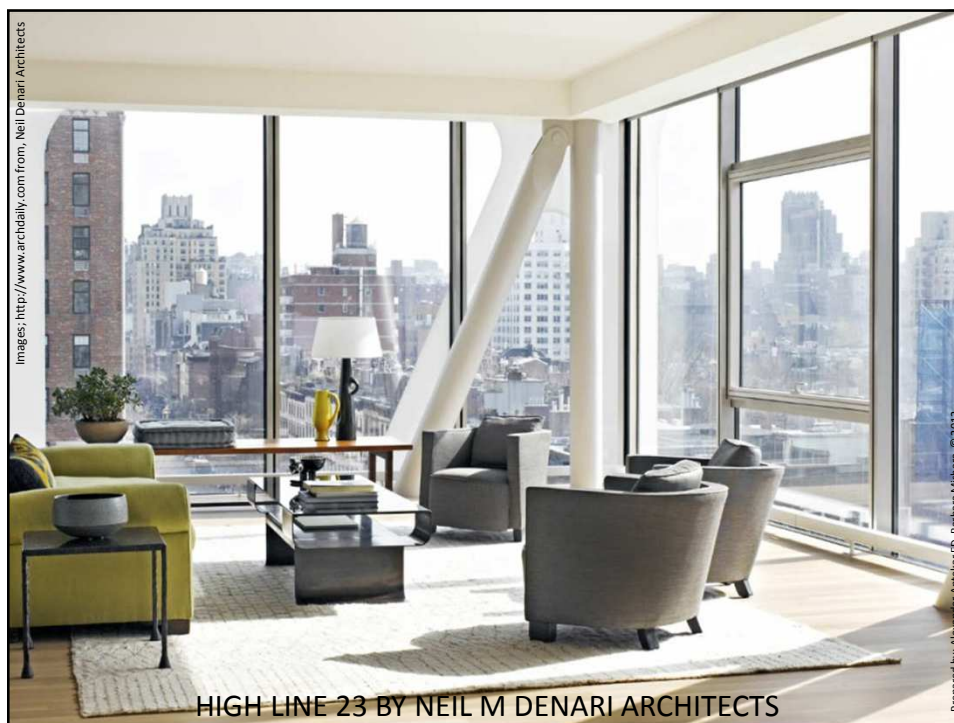
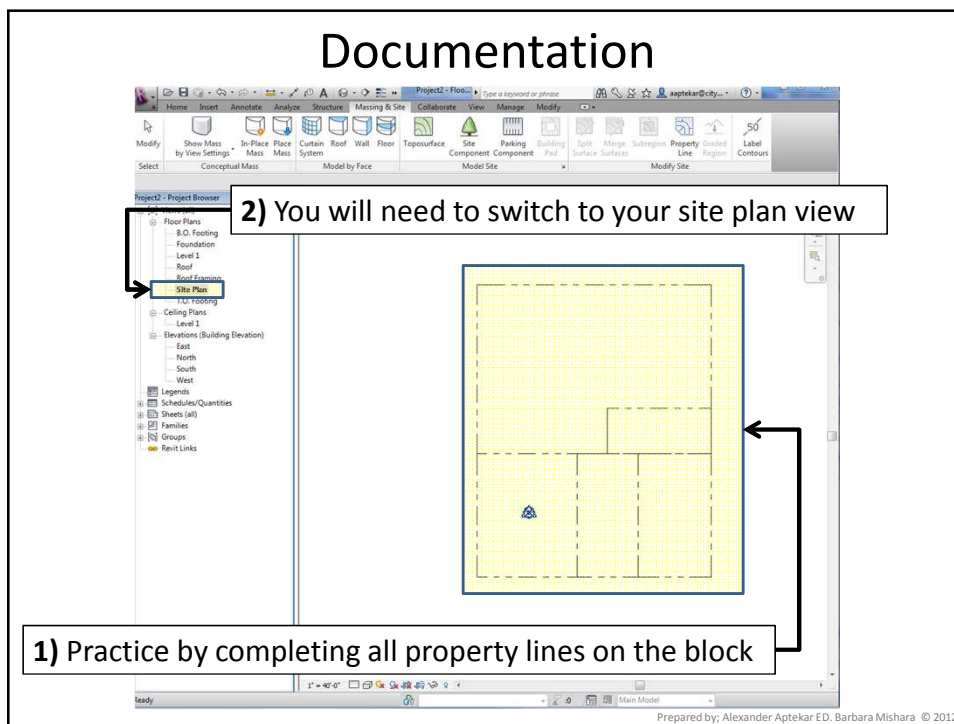
1) Use their "Draw" to us to sketch their property lines

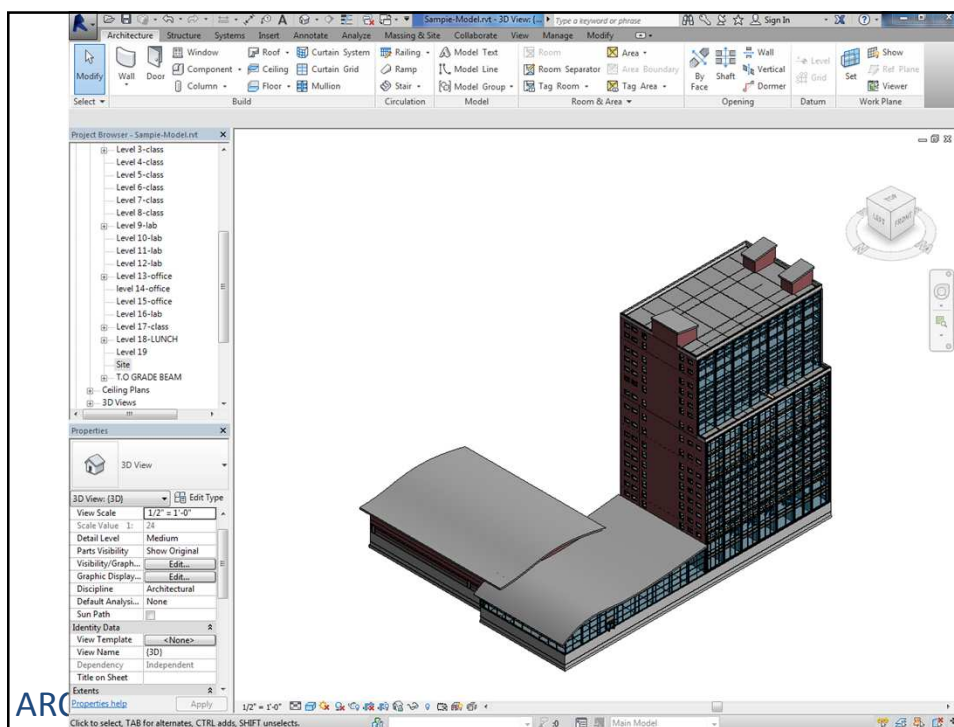
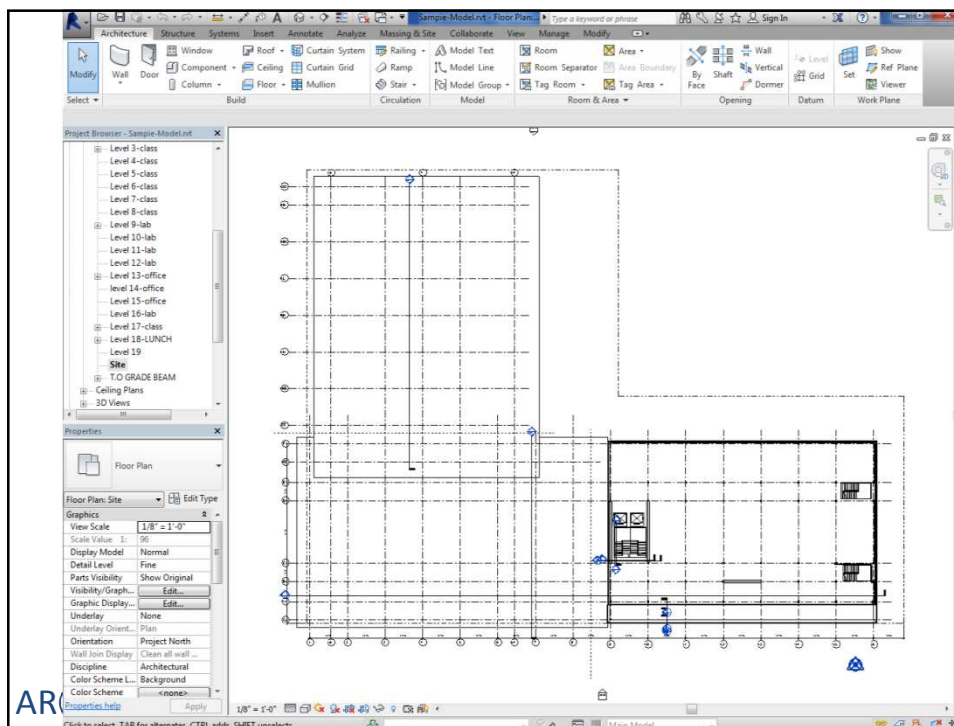
3) When complete click on the check mark to finish.

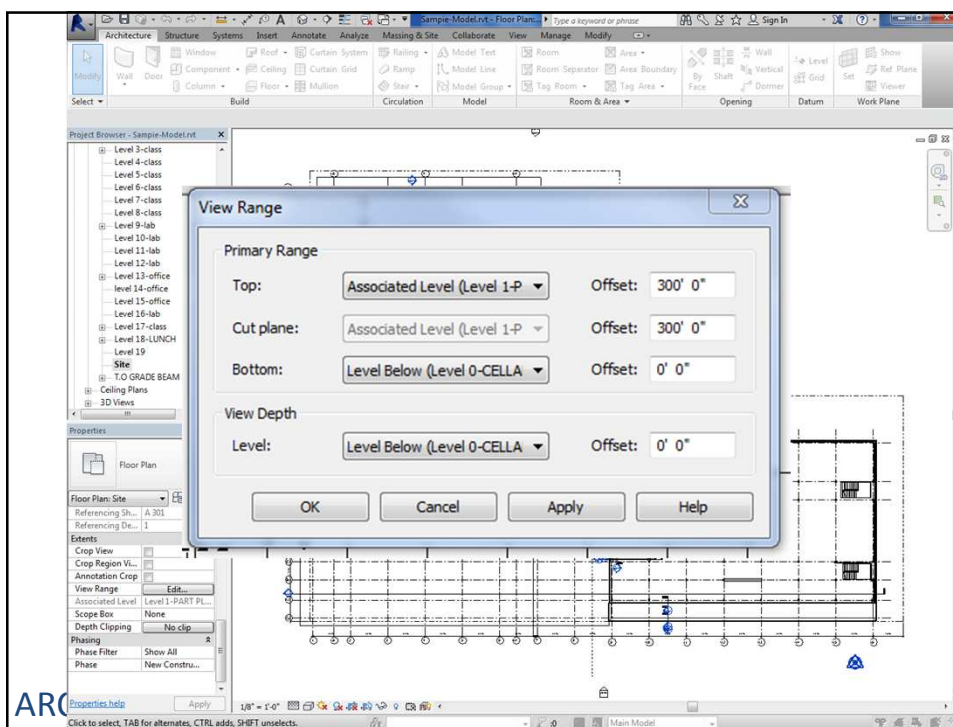
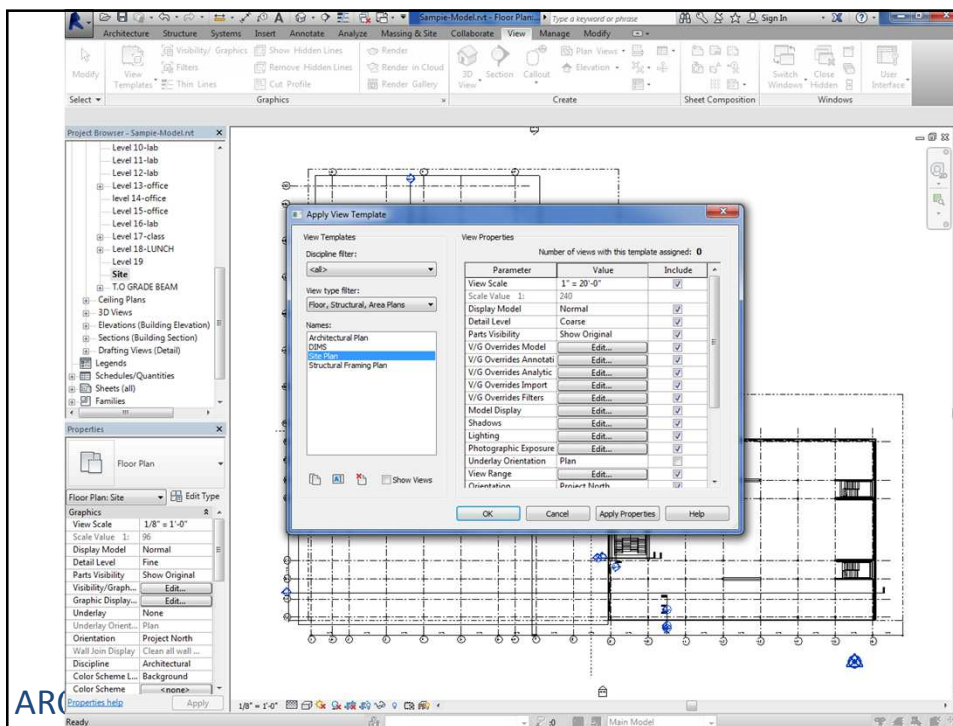
2) You can type numbers in here to get exact dimensions. Rivet uses feet as it's default measurement length. To indicate inches use the " " symbol or leave a space between your feet and inches number.

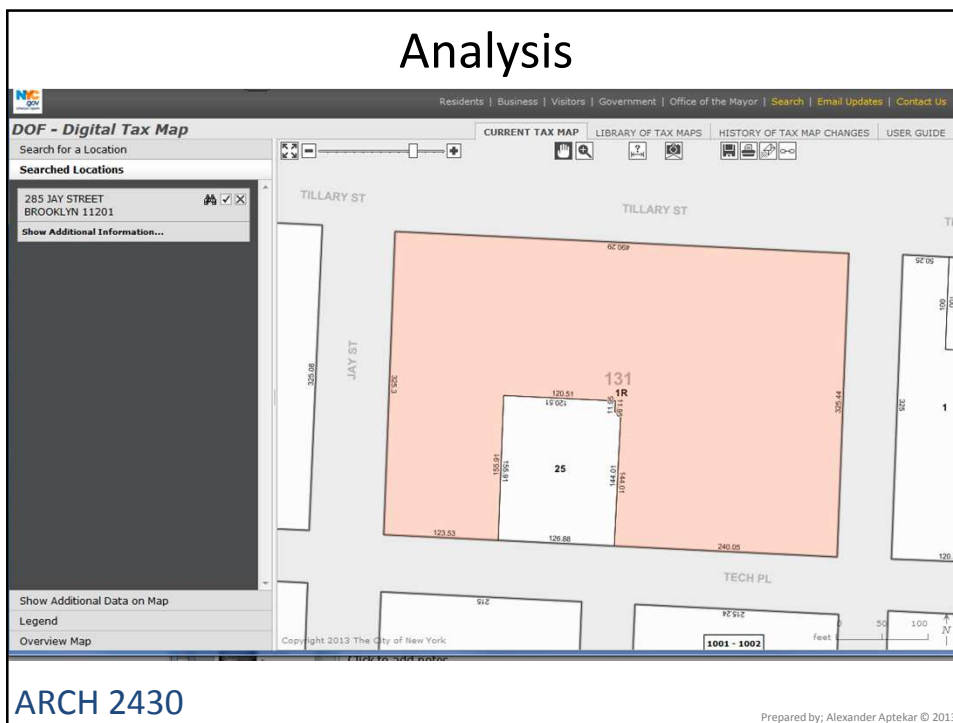
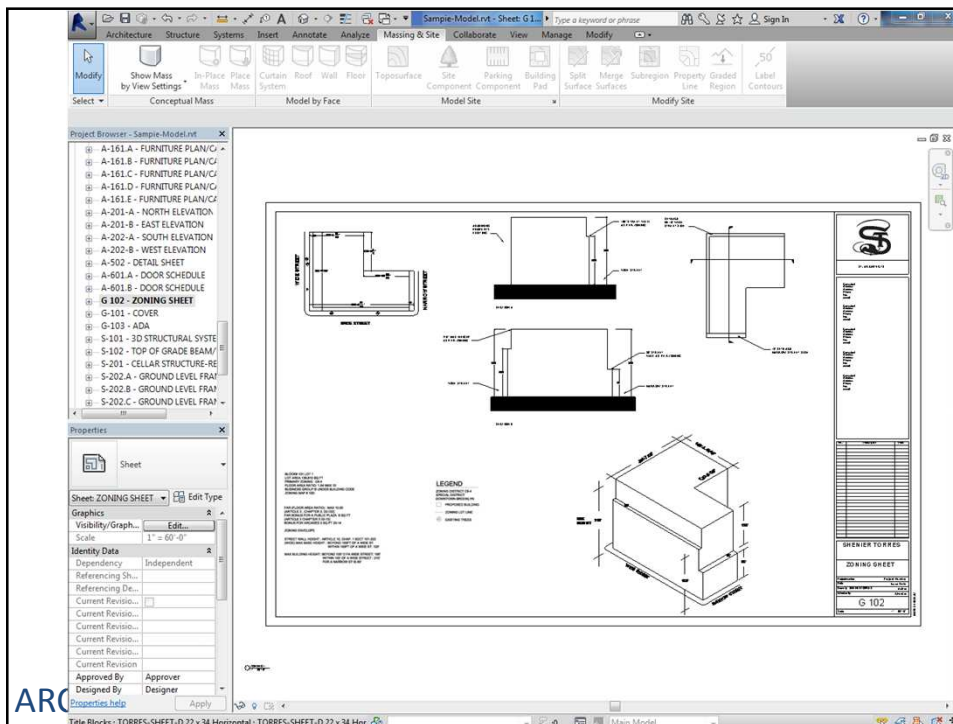
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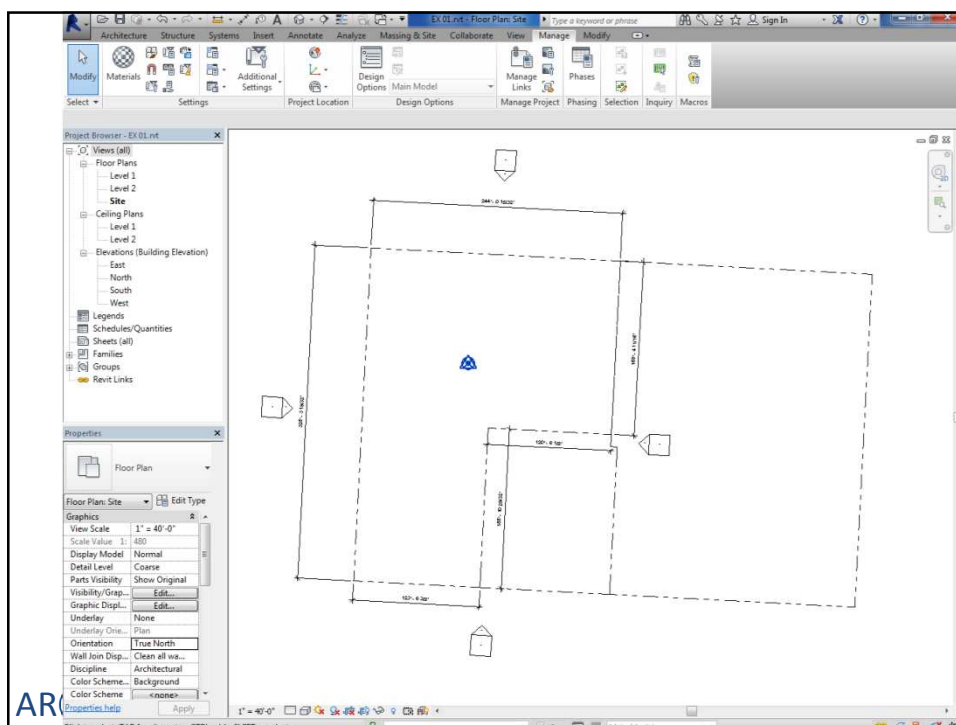
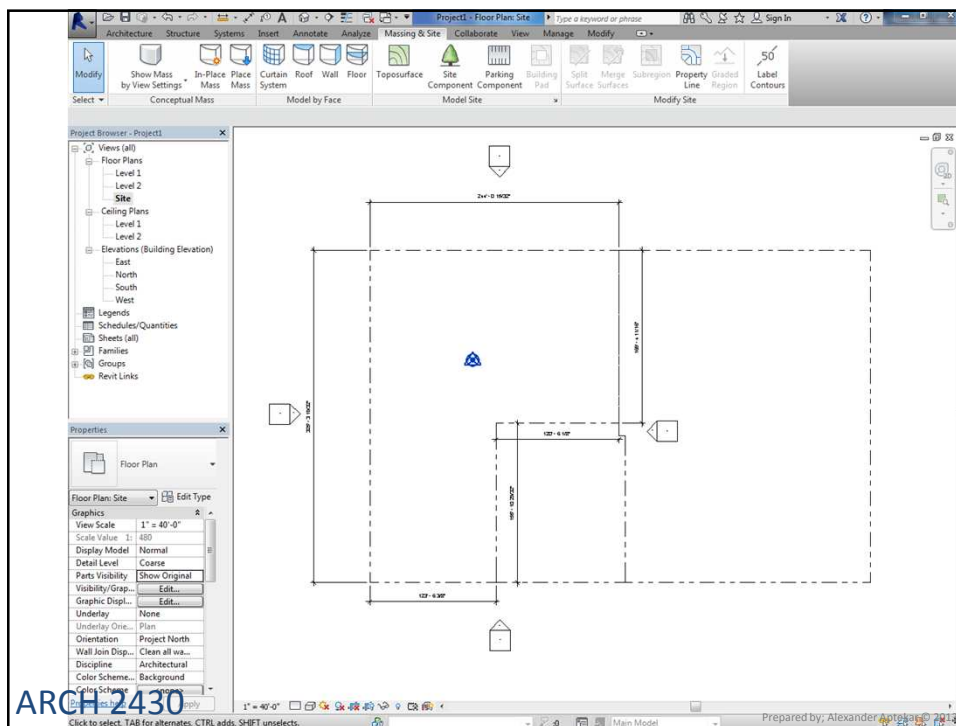
Documentation

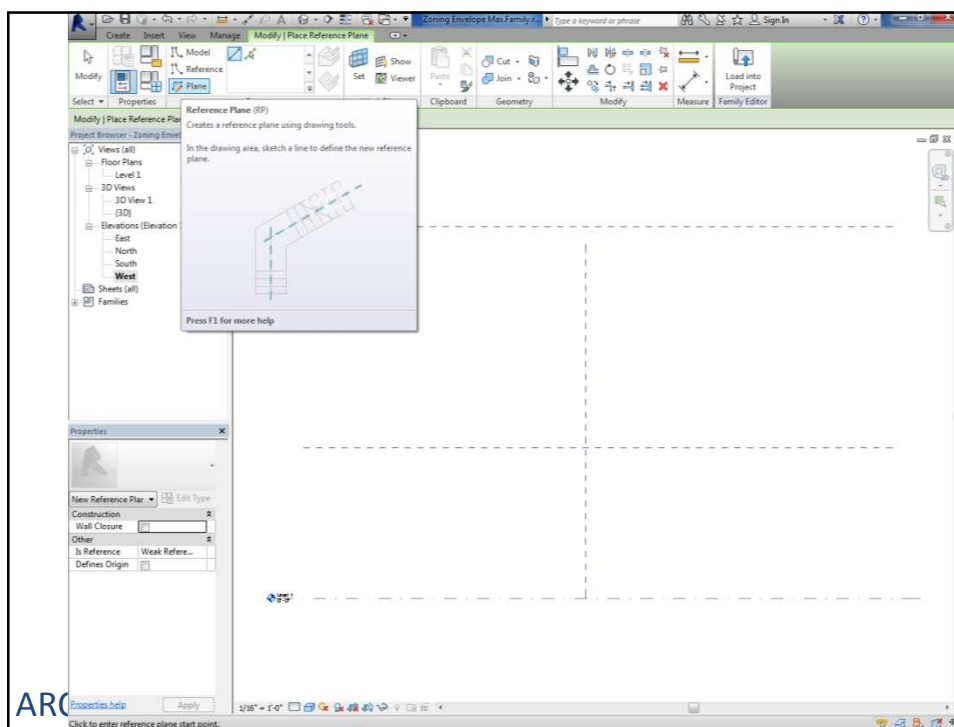
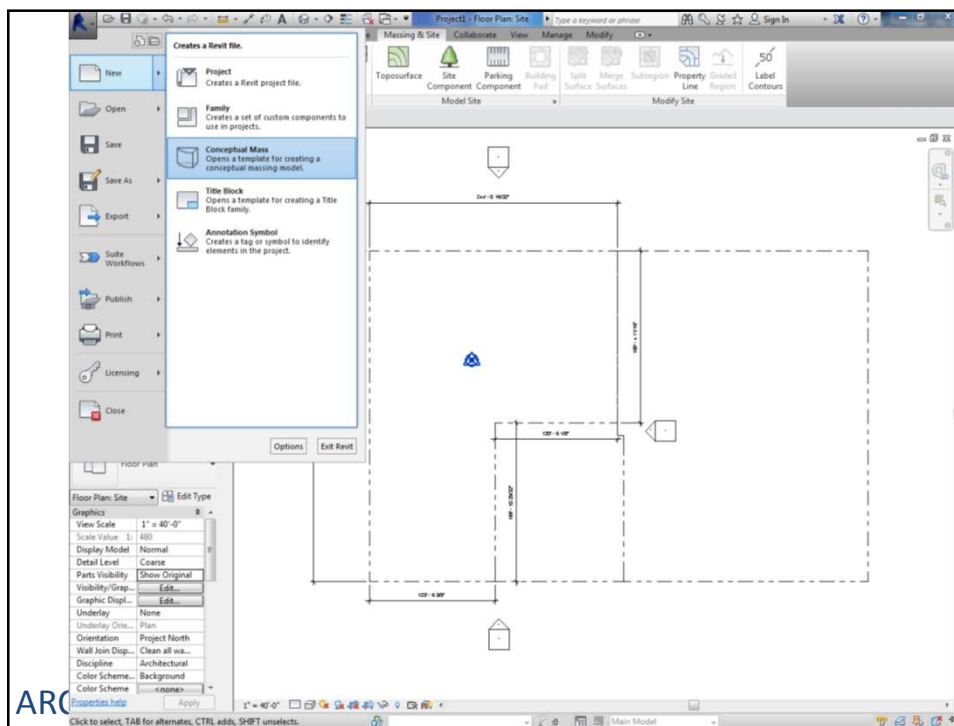


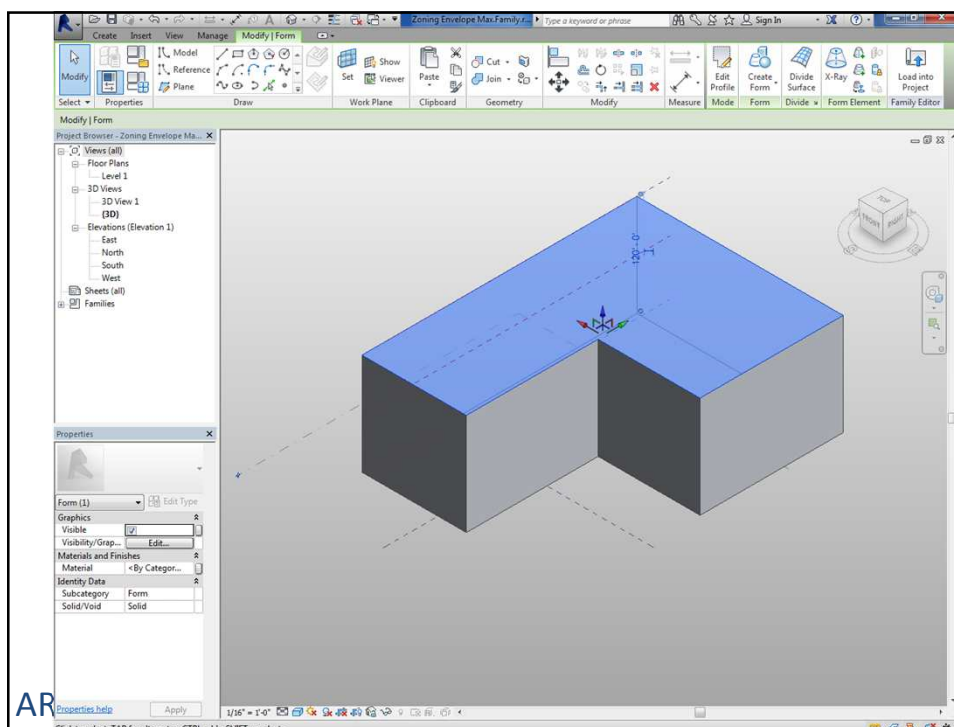
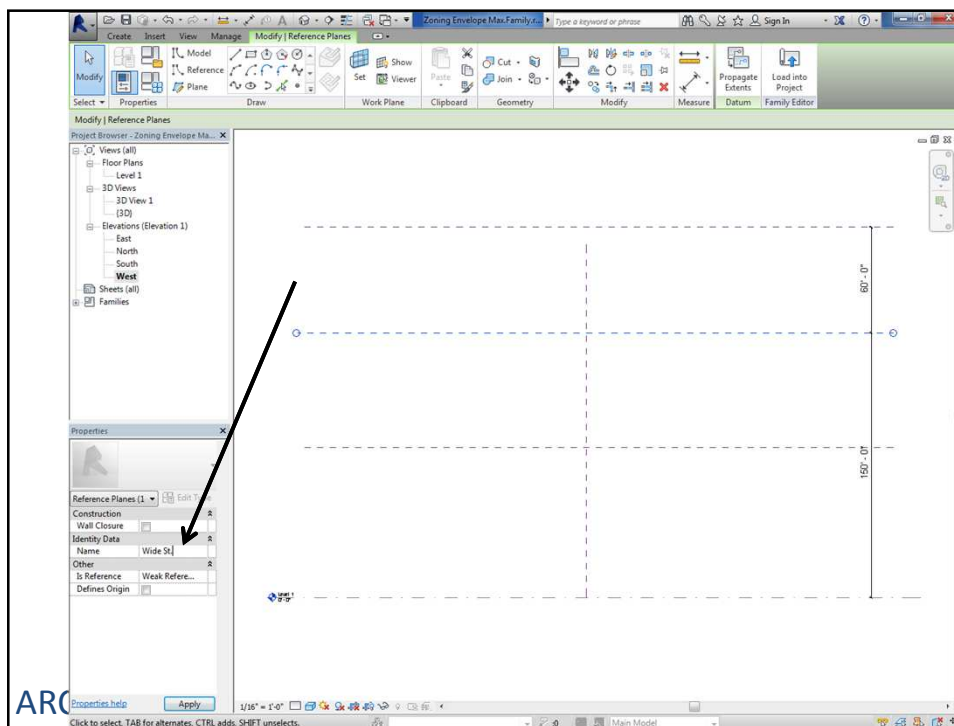


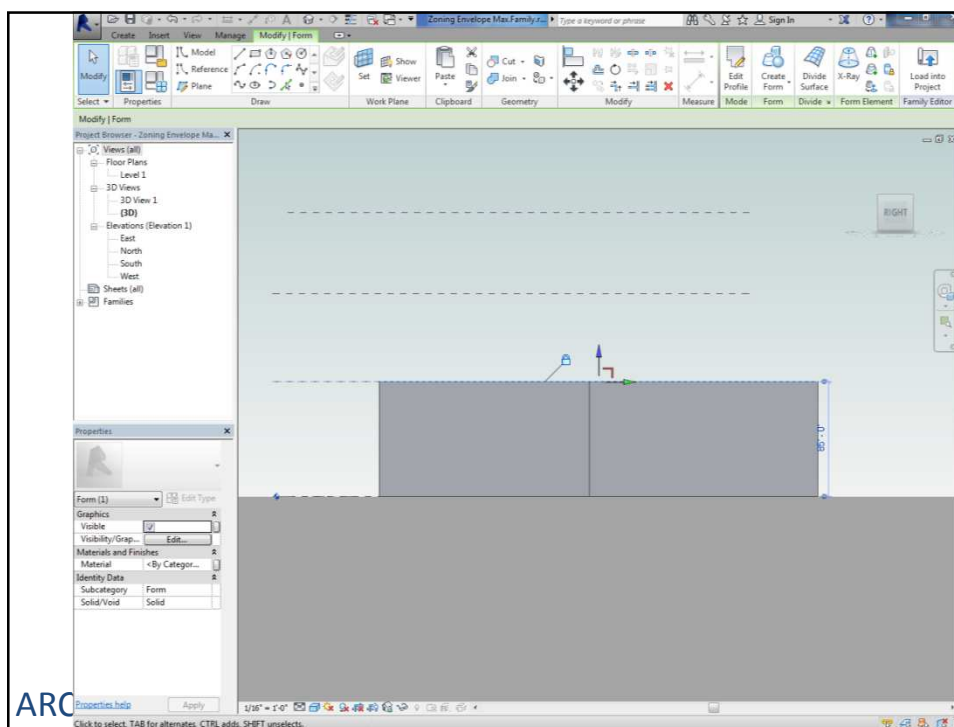
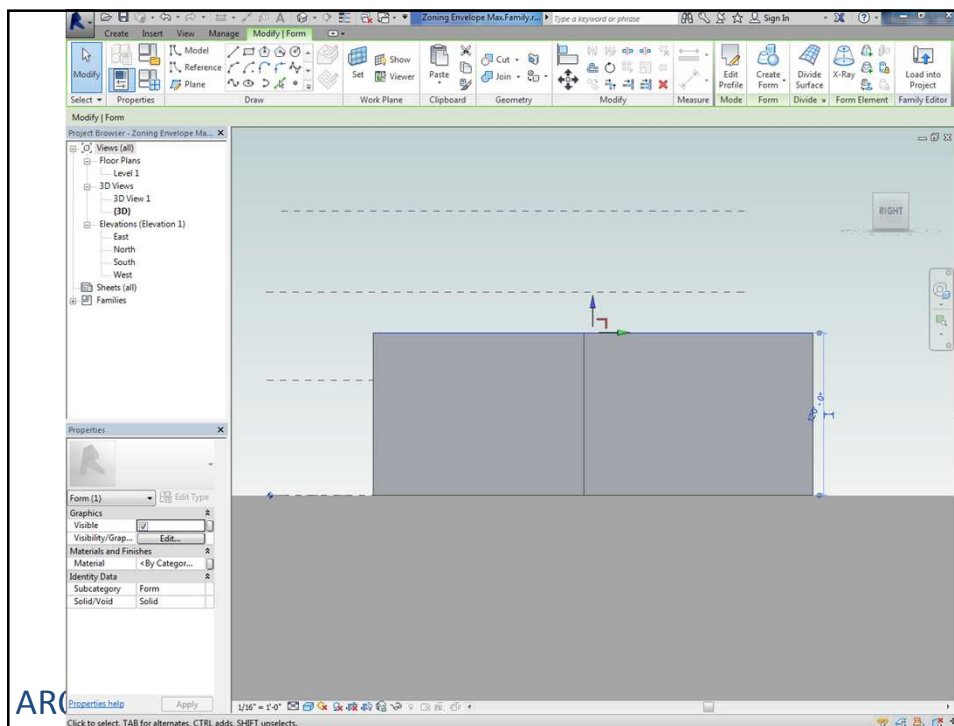


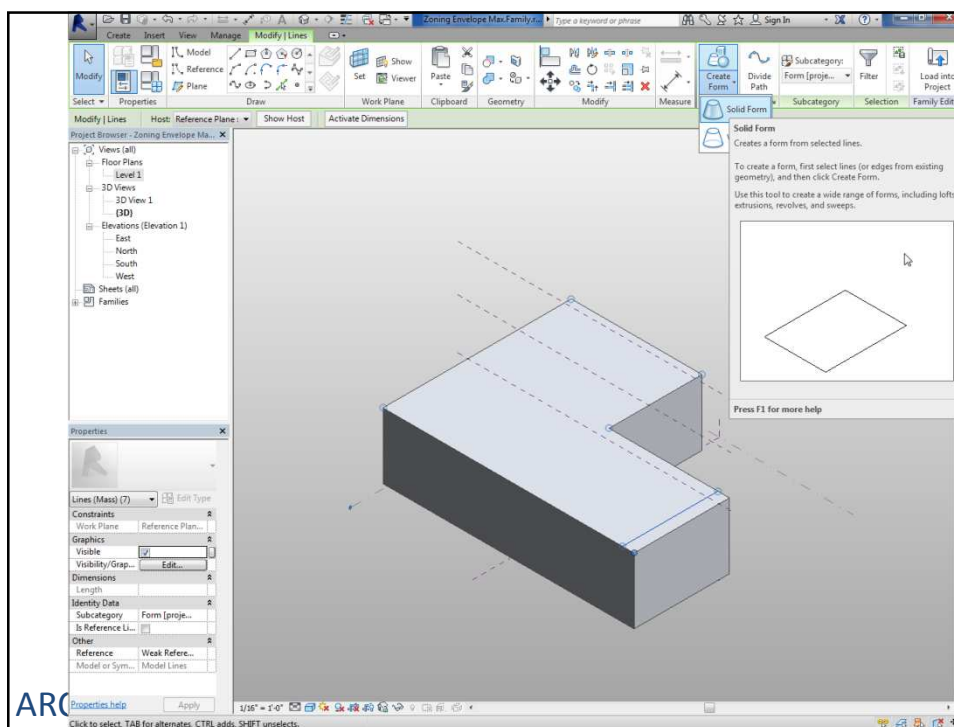
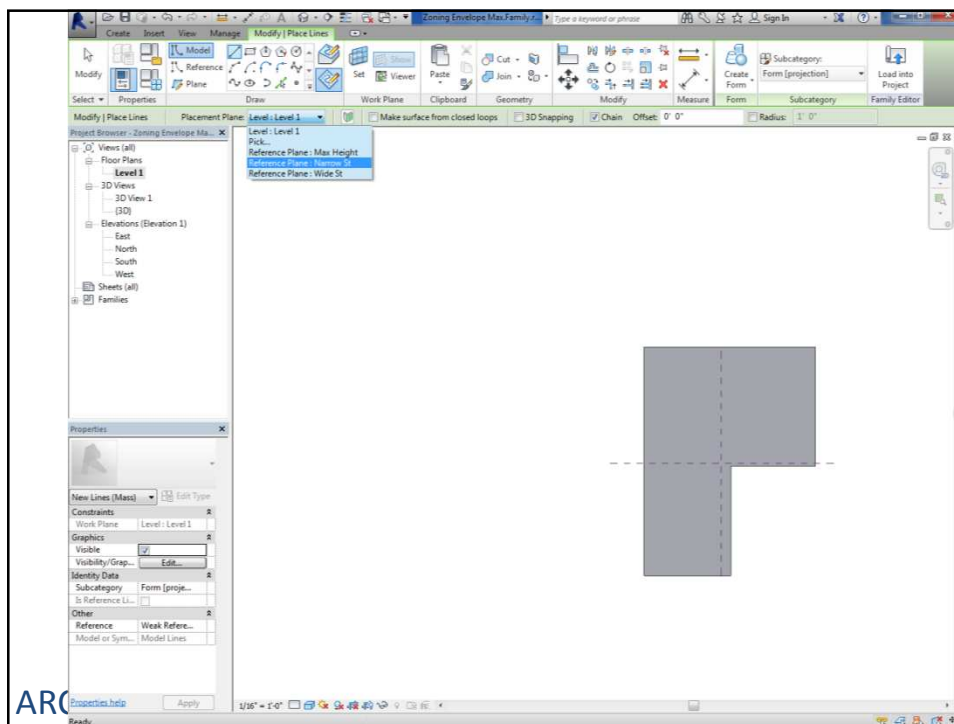


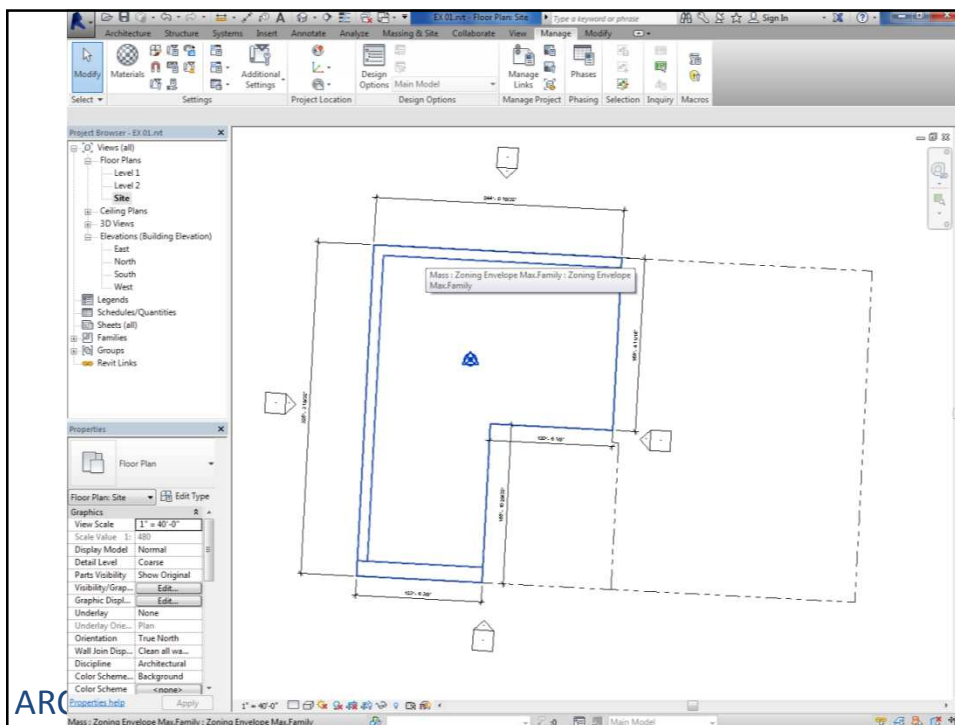
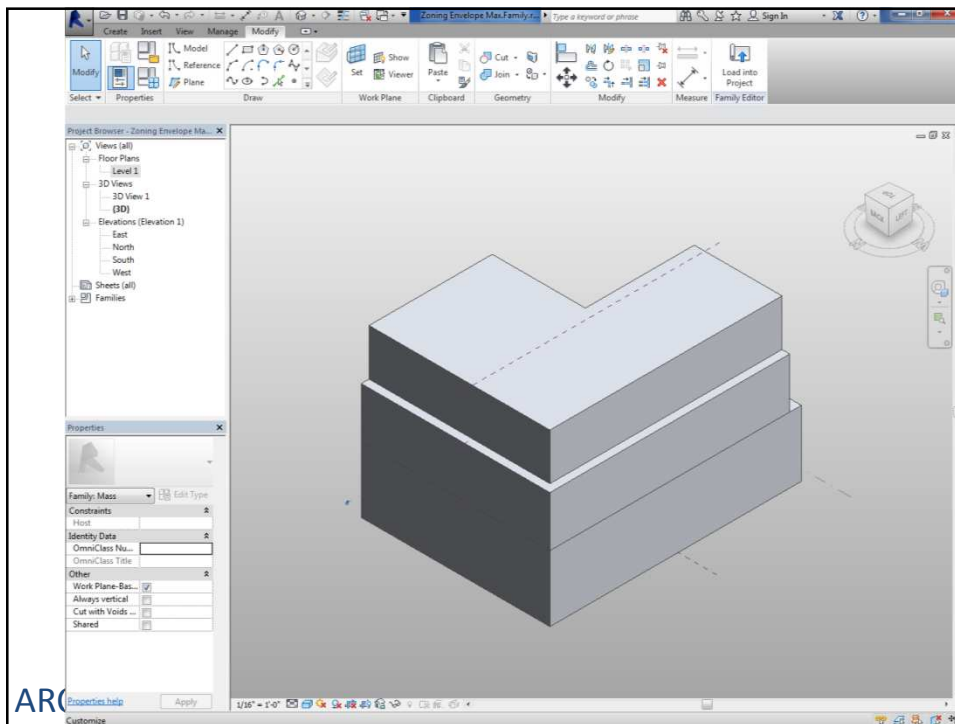












Sample Drawing

SITE PLAN DIAGRAM
1/8" = 1'-0"

LOT COVERAGE AS PER ZR XX-XX
LOT AREA 50 FT

REAR YARD OF ADJOINING PROPERTY

20' REAR YARD AS PER ZR XX-XX

20' FRONT YARD AS PER ZR XX-XX

SIDEWALK

TO/TO NEAREST CORNER

STREET TREE PLANTING AS PER ZR XX-XX

NARROW STREET

LEGEND
C1-6A
RESIDENTIAL DISTRICT EQUIPMENT
RTA QUALITY HOUSING PROGRAM

- PROPOSED BUILDING
- ZONING LOT LINE
- PERMITTED OBSTRUCTION
- MAXIMUM BUILDING ENVELOPE
- MAXIMUM DORMER ENVELOPE
- EXISTING TREE
- PROPOSED TREE

AXONOMETRIC DIAGRAM
NOT TO SCALE

REQUIRED DETRACKS
FRONT AS PER ZR XX-XX
SIDE AS PER ZR XX-XX

PERMITTED OBSTRUCTIONS
FRONT AS PER ZR XX-XX
SIDE AS PER ZR XX-XX

50' STREET WALL AS PER ZR XX-XX

74' BUILDING HEIGHT AS PER ZR XX-XX

NARROW STREET

NYC Buildings

ZD1 Zoning Diagram
Must be approved

Submitted to resolve objections stated in a notice of intent to revise issued pursuant to rule 101-10:

Location Information
House No.:
Street Name:
Borough:
Block:
Lot:
BIN:

Publication of any statement is a misdemeanor and is punishable by a fine or imprisonment or both. It is unlawful to give to a city employee or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. In order to be eligible for any benefit, monetary or otherwise, an individual must first have knowledge or negligence made a false statement or to neglect, tamper, falsify, or otherwise interfere with the proper operation of the city or of a rule of any agency, may be barred from filing further applications or interventions with the Department.

NAME (PLEASE PRINT) _____

SIGNATURE _____ DATE _____

PLAN EXAMINER SIGN AND DATE _____

SECTION DIAGRAM
NOT TO SCALE

50' STREET WALL AS PER ZR XX-XX

74' BUILDING HEIGHT AS PER ZR XX-XX

- 1 Column 8"Ø
- 2 Column W8x31
- 3 Column W8x35
- 4 Perimeter Beam 12x6x3/8"
- 5 Beam W10x22
- 6 Beam W12x58
- 7 Angle 6x6x1/2"
- 8 Solid Steel Mullion
- 9 Bracket
- 10 Perimeter Heating
- 11 Deck, Wood
- 12 Composite Cellular Deck
- 13 Hat Channel
- 14 GWB 6/8"
- 15 Exterior Grade Insulation
- 16 Moisture Barrier
- 17 Fire Proofing
- 18 Coping, Stainless Steel
- 19 Mechoshade
- 20 Metal Stud
- 21 Glass
- 22 Metal Panel
- 23 Panel
- 24 Denoglass
- 25 Pull-Out Window

HIGH LINE 23 BY NEIL M DENARI ARCHITECTS

Section detail

Prepared by: Alexander Apteker E.D., Barbara Mishra © 2012

Images: <http://www.archdaily.com> from: Neil Denari Architects



Be sure to bring into next class:

1. A rough draft of your concrete research to date
2. A minimum of two Revit massing families that show different massing solutions. They should be based on:
 - i. Your selected team project interior plans
 - ii. In design that creates three component building
 - iii. With areas that roughly match the zoning thFAR

End

ARCH 2430

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