The New York Times Building

IPD/ BIM Thesis Technical Assignment One

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EXECUTIVE SUMMARY

This report is a comprehensive analysis of the existing conditions for The New York Times Building. Issues discussed including project schedule, building systems, project costs, existing conditions site logistics, local conditions, client information, project delivery method, and construction team staffing.

The New York Times Building is located in the Times Square region of Midtown Manhattan at 620 8th Avenue between West 40th and 41st Streets, New York City. The site is directly across 8th Ave. from the Port Authority Bus Terminal, and across 41st St. from the Times Square Hilton. The site is part of the urban-renewal zone of the 42nd St. Development Project, run by the Empire State Development Corporation.

Designed by architect Renzo Piano Building Workshop in association with FXFOWLE, the building is a 52-story tower co-owned by The New York Times Company and Forest City Ratner Companies. The New York Times occupies floors 2-27,while Forest City Ratner Companies owns leasable space on floors 29-50 and 52. Floors 1, 28, and 51 are co-owned floors maintained by both companies. The first floor contains a cultural and performance center, an open-air birch and moss garden, as well as retail space leased to MUJI, Dean & DeLuca Café, and Inakaya. Floors 28 and 51 are mechanical floors for The New York Times spaces and Forest City Ratner Companies spaces, respectively.

AMEC Construction was contracted at the CM-at-risk for the core and shell for this project. Turner Construction Company was the CM responsible for The New York Times spaces, while leasing companies will finish the Forest City Ratner Companies' spaces individually. Structural engineers Thornton Tomasetti, interiors architect Gensler, and MEP engineer WSP Flack & Kurtz were brought in early in the design phase of the project to collaborate on the design. Other specialty contractors were also brought in early for consultation during the design development period, particularly the contractors associated with the design of the double-skin curtain wall system.

Projected costs are set at approximately $1 billion. While The New York Times Company will not release their numbers, Forest City Ratner Companies secured $640 million in permanent financing from HSH Nordbank. The construction process began in April of 2003 and final closeout was achieved in May of 2007.

There are many sustainable features integrated with the systems in the project ranging from daylight utilization, under-floor air distribution, a complex building automation system, an on-site co-generation plant utilizing heat recovery, and an exterior double-skin curtain wall ceramic shading system. While the building contains many sustainable features, it was not the intent of the owner to pursue any LEED accreditation.

It is important to note that due to the confidential nature of this project with respect to potential security issues, may details were not provided. A best estimate based on engineering judgment and precedence set in prior Architectural Engineering courses was used to fill in as many information gaps as possible. Some information could not be calculated, and will be obtained in the near future prior to the final report deadline. This information is explicitly mentioned in the body of the report.

SCHEDULE NARRATIVE

The project summary schedule for the New York Times Building is comprised of the activities starting with Owner Acquisition and Bid/Award phase all the way through Finish and Closeout. The summary schedule is comprised of all major building system phases for both the podium and the tower section of the New York Times Building. A schedule summary created in Microsoft Project can be found in Appendix A. The following is a list of key system durations and dates:

Phases	Duration (Days)	Start Date	Finish Date
Site/Foundations	330	4/19/04	3/25/05
Superstructure	699	9/19/03	5/24/06
Enclosure	1058	3/3/03	3/21/07
Building Systems	827	2/11/04	4/12/07
Interior Finishes	434	6/15/05	2/12/07
Construction Duration	1091	4/19/04	5/8/07

Structural Steel preconstruction activities including steel package award, shop drawings, mill orders, and fabrication took just under two years. Steel erection of the podium and the tower took a little over one year to finish. The typical steel layout throughout the tower structure makes it easy to phase the repetitive task of erecting steel.

MEP Coordination occurs between February and December 2004. Construction of the building systems is scheduled for September 2004 for underground plumbing and January 2007 for Fire Alarm Completion. Commissioning activities occur at the completion of each system construction phase.

The closeout and turnover of the entire building occurs in phases between December 2005 and May 2007. The New York Times section of the building is handed over by Turner Construction starting at the end of December 2005 and finishing in June 2006, with the lobby being turned over jointly to the New York Times and Forrest City Ratner Company in March of 2006.

SYSTEM SUMMARY

WORK SCOPE	IMPLEMENTED SYSTEM	NOTES
Demolition	Line Drilling, Light blasting charges	Due to proximity of other buildings
Excavation Support	Rakers, Walers, Rock bolts, Soldier beam and lagging	Varies based on soil composition and adjacency to other buildings or subway lines
Foundation	6,000 psi rated Spread footings and Caissons	Caissons used to reach bedrock with proper bearing capacity
Superstructure	Steel framing with concrete on metal decking, Outrigger Truss System	Outrigger truss system transfers loads to perimeter column system
Mechanical System	UFAD system, Overhead ductwork, zoned VAV system,	UFAD system designed for New York Times Spaces, APOGEE system optimizes system usage
Electrical System	Electrical system data unavailable	Electrical service and distribution system will be updated as soon as data is obtained
Sustainability Strategies	APOGEE automation system, Quantom lighting control system, birch garden, cogeneration facility	Most sustainable design strategies revolve around efficient system selection and energy management
Curtain Wall	Spaced ceramic rod system	Reduces radiant energy transmission by 50%
Fire Protection	Standpipe, Automatic wet sprinkler system	Controlled by APOGEE automation system

EXISTING STRUCTURE DEMOLITION

There were several different buildings located on the site prior to the beginning of the construction process for the New York Times Building. According to the known existing conditions, several five story residential buildings occupied the site as well as several parking lots. Many of these buildings contain one to two level basements, but one building immediately adjacent to the eastern portion of the site in contains a seven-story building with three basement floors, extending well beyond the lowest New York Times Floor. In addition to these below grade structures, the Flushing Local subway line runs along the northern border of the site beneath West 41st street, and the 8th Avenue Subway line runs beneath the 8th Avenue western border of the site.

The existing buildings and their foundations required demolition and removal away from the site by means of a pay loader for soil and building rubble, and a hoe ram for decomposed and weathered rock. Due to the proximity of the site to neighboring buildings in some locations a line drilling method was used to achieve a near-vertical demolition process that minimally disturbs other facilities.

No indications from the initial surveys and reports indicate any preliminary suspicion of hazardous materials such as lead paint or asbestos, but this information will be confirmed as soon as possible.

EXCAVATION SUPPORT SYSTEM

In the Midtown Manhattan region, many sites have bedrock that is very close to street level with respect to elevation. Excavating the bedrock is a costly and time-consuming process, and as a result only one floor was designed below grade. According to known existing conditions, the most viable method of excavation would be blasting with light charges so as not to disturb the operations of nearby buildings.

A rigid support system was suggested due other buildings being located very close to excavation area. This rigid system used varies based on the region of the site.

AREA OF SITE	SUPPORT SYSTEM	REASON FOR SYSTEM
North Face (41st Street)	Soldier beam and lagging or rock bolts	Unfavorable soils possibly containing broken or weathered rock
West Face (8th Avenue)	Wales and rakers with concrete heel blocks	Immediate adjacency to 8th Avenue subway system
South Face (40th Street)	Soldier beam and lagging or rock bolts	Unfavorable amounts of broken or weathered rock from core samples
East Face (Property border)	10' long tensioned bolts	Possibly excavating deeper than the basement level of adjacent buildings

STRUCTURAL SYSTEM: FOUNDATION

Prior to a final field analysis of the site, the foundation of the New York Times Building was solely comprised of 6,000 psi (compressive) rated spread footings on bedrock. As noted in the existing conditions report, the initial bearing capacity of the bedrock was predicted to be 40 tons/ SF, excepting the southern portion of the site which was rated at 20 tons/ SF.

Further analysis by showed that in the southeastern corner of the site the bearing capacity of the bedrock was only capable of mitigating loads up to 8 tons/ SF. To account for these differing site conditions, the foundation system in this region was changed to 24" diameter steel-encased caissons. This allowed for loads to be transmitted to a depth where bedrock with a higher bearing capacity was known to exist.

STRUCTURAL SYSTEM: SUPERSTRUCTURE

Above grade, the structure is comprised of a steel framed system in conjunction with metal decking and concrete. To maintain transparency through the building, it was proposed by the structural engineer to have the largest structural members placed at the exterior of the curtain wall in addition to an outrigger truss system, allowing a link between core and exterior columns. This allows for a more open floorplan in addition to adding strength against lateral loads. A vertically oriented Vierendeel truss system assists in mitigating the loads that occur in the cantilevered sections of the office tower, providing even more opportunity for open floor space.

Excluding the ground floor and mechanical floors, there is a standard 16" raised floor on top of the metal deck that allows for an underfloor air distribution system. To maintain visual continuity, the beams that support the metal decking are "dog-legged" before passing through curtain wall to give the illusion that they are supporting the raised floor system (rather than supporting the area 16" below the raised floor system) from the exterior.

MECHANICAL SYSTEM

Floors 28 and 51 are double-height spaces that act as the main mechanical areas for the building. The 28th floor mechanical area services floors 1-27 while the 51st floor mechanical area serves the remainder of floors. Outside air is dehumidified and pre-heated or cooled on the mechanical floors, and then sent to air handlers on tenant floors for the humidification and heating or cooling. Each floor contains VAV boxes to regulate the distribution of air- in the New York times spaces (floors 2-27) these boxes are located in the floor plenum created by the raised floor system, while VAV boxes are located in the ceiling plenum for the Forest City Ratner Company spaces.

The New York Times spaces utilize on an underfloor air distribution (UFAD) system to distribute air throughout the office spaces. This system relies on a thermal gradient between the floor and ceiling levels to assist the distribution system in moving air to returns in the small ceiling plenum.

In most instances, swirl diffusers in the floor distribute air through the raised floor system. In larger spaces such as conference rooms, many of these swirl diffusers would be required and would detract from the aesthetics that the architect envisioned. In lieu of using swirl diffusers in the larger spaces, the floor itself is perforated to allow air to flow through.

The distribution system for the Forest City Ratner Company floors (29-50) is a standard sheetmetal ducted system that will assist in allowing individual lessees to design their own office spaces as they see fit.

With regard to heating, a low-pressure steam system distributes steam purchased from the utility company Consolidated Edison throughout the building to air handlers located on each floor. A hot water system is also in place to heat perimeter spaces as needed. To cool the building, a 6,000 ton central-chilled water plant is located on site, comprised of five 1,150 ton electric centrifugal chillers and one 250 ton single stage absorption chiller.

ELECTRICAL SYSTEM

As of October 5th, 2009, obtaining detailed information regarding the exact electrical distribution system is still in progress.

The New York Times building currently has a 6 W/SF demand load for lighting and power. There are two electrical closets per floor to allow for maintenance access

SUSTAINABLE DESIGN STRATEGIES

While LEED certification was not pursued for the New York Times Building, sustainable design practices are evident throughout the building. The practices utilized in the New York Times Building largely revolve around efficient systems and equipment selection and their successful integration with one another. In addition, several architectural features add to the overall sustainability and energy management of the building.

The APOGEE building automation system designed by Siemens was implemented to control all major HVAC systems in the building. The building is zoned for thermal/ environmental comfort based on the current tenant configuration that was created by Flack + Kurtz based on the needs of the NYT. In addition to efficiently managing the environmental systems, the APOGEE system also manages all of the life safety systems in the building.

The Lutron Quantom Control System works closely with the Siemens APOGEE building automation system to integrate lighting conditions with the environmental control system. The Lutron system will automatically control perimeter shading and lamp dimming in order to provide optimal lighting conditions for the occupants. The Quantom system manages the lighting far more effectively than initially predicted, averaging 0.38 W/SF annually.

By effectively integrating lighting and HVAC control systems in a zoned energy management plan, significant energy savings can be achieved in comparison to more traditional systems that do not use zones or do not integrate lighting and HVAC systems. The environmental needs of a few tenants can be efficiently provided by the system without a significant waste in energy.

Another example of the harmony between mechanical and electrical systems that is present throughout the building is the on site 1.4 MW cogeneration plant located on the pedestal area. Two parallel natural-gas fired reciprocating engines power the building, and waste heat is transferred to the absorption chiller for use in perimeter heating operations. This reduces the dependence of the building on the Consolidated Edison power grid and reduces the load on the building's heating system at the same time.

Aside from the curtain wall system, a centrally located birch garden is the chief architectural sustainable design element. The garden is 4,900 square feet and allows daylight to penetrate into the lobby, auditorium, and New York Times workspaces on the first five floors.

CURTAIN WALL SYSTEM

The curtain wall system utilized by the New York Times is the major architectural sustainable design element. Composed of horizontally oriented ceramic rods spaced at variable center-to-center distances up the façade, it blocks 50% of radiant energy from entering the building.

Significant mock-up testing was performed on various iterations of the design off-site in Brooklyn until the final spacing was chosen based on aesthetics and performance. The system was unitized into sections that could be lifted into place by a crane and attached to the structure with a small work crew.

FIRE PROTECTION SYSTEM

The fire protection system utilized by the NYT Building utilizes a standpipe system with an automatic wet sprinkler system and valved outlets on each floor, controlled by the Siemens APOGEE system and linked to a base class E fire alarm system.

Architecturally, ADA compliant spaces are provided on each floor. Due to the open nature of several of the stairwells, a special fire shutter system had to be developed that runs parallel to the floor plane and cuts the staircase in half, effectively sealing the slab penetration and preventing fire advancement.

ACTUAL COST SUMMARY

Information has been fairly difficult to obtain with regards to the New York Times Building Project. Much of the following information has been compiled and calculated using some conservative assumptions. The figures in the following section will include sources or assumptions from which the information has been found or calculated. The Architectural Record Project Portfolio of the New York Times Building states that the cost of the building "exceeds $1 billion." For the purposes of remaining consistent in this report, the construction cost of the project will be assumed to be $1 billion. This technical report will be revised with more updated information as it is released to the group.

CONSTRUCTION COST	CONSTRUCTION COST PER SQUARE FOOT
$ 1 Billion	$ 667 / SF

There is not a detailed breakdown of actual systems cost for this project. A breakdown of systems cost will be outlined in the parametric cost estimate section below. This will provide a reference for approximately how much the systems of the building cost.

PARAMETRIC ESTIMATE WITH D4COST

There are very few buildings in the world that are similar to the New York Times Building in size and distinction. Because of its uniqueness, it was difficult to find similar buildings within the D4Cost estimation software that compare. The following four projects were selected in order to get a representative parametric estimate for the project.

PROJECT NAME	PROJECT LOCATION	BUILDING USE	SIZE	FLOORS	COST	COMPARISON TO NYT
Ha-Lo Headquarters	Niles, IL	Office	267,334 SF	7	$ 40,134,138	Building Type, Tower Form
NYS DOT Region One Headquarters	Schenectady, New York	Office	125,000 SF	4	$ 18,914,056	Building Type, LEED Silver
Preston Point Office/Retail/Condo	Louisville, KY	Office	105,768 SF	8	$ 8,505,277	Building Type, Tower Form
SRO Residence	New York, NY	Residential	23,853 SF	5	$ 2,830,057	Location

The first three projects were mainly chosen for their building type and relative size. There were not many tower structures in D4Cost and there were no "skyscrapers" in the project database. The NYS DOT project was especially useful in the estimate because it was a LEED Silver certified building. Increases in the systems cost due to the sustainable features of the New York Times Building can be found in the NYS DOT project.

A smart averaging function was run with these projects selected, which produced a cost breakdown that would be similar to the New York Times Building. D4Cost came up with a total project cost of **$432,957,936** with a square foot cost of **$288.64/SF**. The estimate also includes costs of each division of the project. A detailed breakdown is available in Appendix B. The following is a breakdown of the costs of the major systems in the building:

System	Percentage of Project Cost	Cost per Square Foot	System Cost for Total D4 Estimated Cost ($432,957,936)	System Cost Projected for $1 Billion Project Cost
Electrical	19.97 %	$ 57.65	$ 86,467,871	$ 199,700,000
Mechanical	17.49 %	$ 50.48	$ 75,721,782	$ 174,900,000
Site Work	2.03 %	$ 5.87	$ 8,801,948	$ 20,300,000
Steel and Concrete	17.93 %	$ 51.77	$ 77,657,644	$ 173,300,000

Due to the change in CSI MasterFormat, multiple divisions had to be combined in order to come up with the systems costs. These systems costs are broken up in order to gain an accurate picture of the estimated costs of each of the systems and the projected cost of the systems actually installed in the New York Times Building.

RS MEANS SQUARE FOOT ESTIMATE

In order to obtain a more relevant square foot estimate in RS Means, a large amount of assumptions had to be made. RS Means has no estimate for an office building that is more than 20 stories similar to the New York Times Building. The estimate was formed from the 11-20 story office building square foot estimate breakdown. The building system profile that was used was a double glazed heat absorbing tinted plate glass panels with a steel frame construction that had an area of 800,000 SF and a perimeter of 820 LF. This yielded a base cost per SF of $139.50. The following adjustments were made to fit the profile of the New York Times Building:

Base Cost per SF	From RS Means	139.5	per SF
Parimeter Adjustment	1,150 - 820 =	330	LF
	330/100 * 1.3 =	**$ 4.29**	**per SF**
Story Height Adjustment	14' - 10' =	4	ft
	4' * 0.95 =	**$ 3.80**	**per SF**
Total Cost per SF	Cost per SF	**$ 147.59**	**per SF**
	Total SF Cost	**$ 221,385,000**	
Basement Adjustment	Basement Area	72,000	SF
	Add per SF	$ 36.40	per SF
	Total	**$ 2,620,800**	

Elevator Adjustment
4000# Capacity

	Quantity	Stops	Base Elevator Cost (Each)	Stops To Add	$ per Add Stop	Add Stop $ (Each)	Total Elevator Cost
Podium	3	4	$ 433,000	-6	$ 13,600	$ (81,600)	$ 1,054,200
Low Rise	6	15	$ 433,000	5	$ 13,600	$ 68,000	$ 3,006,000
Mid-Low Rise	6	28	$ 433,000	18	$ 13,600	$ 244,800	$ 4,066,800
Mid-High Rise	8	39	$ 433,000	29	$ 13,600	$ 394,400	$ 6,619,200
High Rise	6	52	$ 433,000	42	$ 13,600	$ 571,200	$ 6,025,200
Service	2	53	$ 433,000	43	$ 13,600	$ 584,800	$ 2,035,600
						Total	**$ 22,807,000**

Total Square Foot Estimate **$ 246,812,800**

The previous estimate is the total square foot estimate including all RS Means adjustments and additions that pertain to the New York Times Building.

The RS Means' figure is a vast underestimate for the New York Times Building. This can be attributed to many different reasons. There are many systems in the building that are more advanced and more expensive than the normal systems that are installed in a typical office building.

Quality and innovation were two factors that were important to the owners of the building, especially for the New York Times. First, the façade for the New York Times building is a new one of a kind double-skin curtain wall. It incorporates a system of ceramic rods that shield the interior of the building from the sun, far more expensive than that of a normal office building. The HVAC system integrates an under-floor distribution system that more efficiently distributes conditioned air to the tenant spaces.

Many architectural features also created a requirement for premium quality and craftsmanship. The Architect chose an extremely detailed system of exposed structural steel that required extremely tight tolerances with respect to welding the steel connections. Intumescent paint was applied to the exposed structural elements in lieu of typical fireproofing in order to create a more aesthetically pleasing exterior.

All of these extra requirements create a much higher material and construction cost for the New York Times Building that would not be found in existing cost data.

SITE PLAN OF EXISTING CONDITIONS

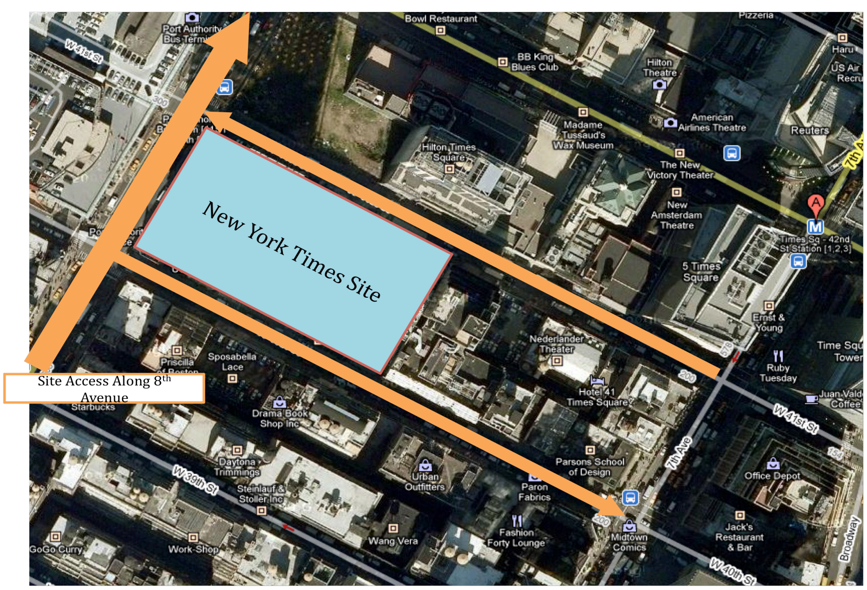
The New York Times Building is located in downtown Manhattan, directly across 8th Ave. from the Port Authority Bus Terminal and approximately eight blocks Northwest from the Empire State Building. Due to the confidential nature of many aspects of this project, a complete site plan is as of yet unavailable. However, due to a time lapse with regard to updating satellite imagery some visual data of the site when it was in construction can still be acquired through using Google Maps and Google Maps Street View, and several inferences can be made with regard to site logistics and temporary structures. For a more detailed site plan, refer to Appendix C.

The site was originally occupied by a variety of different functional areas, ranging from grade-level parking to 5-story mixed-use commercial and residential areas. The site is bordered by two subway structures on the west and north sides- The 8th Avenue subway beneath 8th Avenue to the west, and the Flushing Local subway line running beneath West 41st street to the north. The subway structure is roughly box shape in the case of the 8th Avenue subway, while the subway was bored through the bedrock itself for the Flushing Local. Additionally, there is a pedestrian passageway constructed above the subway using cut and cover methods.

The building is surrounded by a variety of different building types, and coupled with the urban environment this creates significant pedestrian and vehicular traffic. Fencing around the perimeter of the site was erected to keep a secure site, as well as temporary Jersey Barriers to provide a temporary sidewalk in the surrounding streets. Pedestrian safety was a major concern during construction, and building codes required temporary structures for pedestrian protection as shown in Appendix C.

With the urban surroundings and the very tight site restrictions, there are many problems associated with site logistics. Potential layout, staging, and trailer areas are very limited at times during construction and would most likely require a fairly unique solution. Due to difficulties in contacting the original CM, AMEC, no existing condition site plans were acquired, but a generalized solution will be obtained following a discussion with an industry professional on October 6, 2009.

It is known that utilities are located below 41st Street, but the exact utilities are currently unknown. This information will be updated as soon as it is made available.



LOCAL CONSTRUCTION METHODS

There was significant difficulty in contacting the original CM (AMEC) to obtain information regarding preferred local construction methods, parking methods during construction, in addition to recycling and tipping fees.

This will be obtained following a discussion with an industry consultant on 6 October 2009 and Technical Assignment One will be updated briefly thereafter.

SUBSURFACE SOIL CONDITIONS

According to existing knowledge about the soil conditions, the Manhattan region is located on a bed of metamorphic rock known as the Manhattan Ridge. Six borings were made initially, and six additional borings were made after the discovery of a region of soil with poor bearing capacity (Stratum WR) in the southeastern corner of the site. Three test pits were also utilized during the data collection process. The following table is a brief summary of the soil stratification and approximate thickness summarized from known existing conditions. Due to security and privacy issues, the exact distribution of the soil types across the site is currently unavailable.

STRATUM	SOIL TYPE	NYC CLASS	THICKNESS
F	Fill	11-65	3’ to 15’
DR	Decomposed Rock	4-65	1’ to 6’
WR	Weathered Rock	4-65	6’ where encountered
R	Rock	3-65 to 1-65	-

Note: Soil is arranged hierarchically from uppermost to deepest.
Stratum WR was only found in the southeastern portion of the site

The discovery of stratum WR necessitated that a caisson system be utilized to reach Stratum R for its higher bearing capacity. Throughout the remainder of the site, a spread foundation system was deemed acceptable.

SUBSURFACE WATER CONDITIONS

Based on existing knowledge of the site, the water table was found to exist between 34.9 and 32.1 feet below the surface datum level, on average 5 feet below the level of the cellar level of the New York Times Building. This implies that dewatering systems will not be required during construction, but based on existing knowledge it is recommended that the New York Times Building incorporate some form of water management system for potential future issues.

Primarily, it was suggested that an underdrain system consisting of a gravel layer and perforated piping be implemented to mitigate water pressure from water main breaks and temporary flooding.

"THE OPEN PLAN AND EASE OF COMMUNICATION, BOTH VERTICALLY AND HORIZONTALLY, REPRESENT OUR CULTURE OF COLLABORATION AND TRANSPARENCY. THE DAZZLING DESIGN REPRESENTS OUR COMMITMENT TO CONSTANT INNOVATION."

- ***ARTHUR SULZBERGER, JR.***

CHAIRMAN, THE NEW YORK TIMES COMPANY

PUBLISHER, THE NEW YORK TIMES

From The New York Times Building marketing materials

The New York Times Company is a United States-based news media company that owns several different publications, most famously the daily newspaper The New York Times. This paper is one of the most heavily circulated newspapers in the world, and the most heavily circulated paper in the United States.

The New York Times Company was located near Times Square on West 43rd Street for 94 years, which contained all of their printing, writing, and management spaces. While their old building was considered by many to be an iconic work of architecture, the working environment that it created for the writing staff began to contradict some of the more modern corporate philosophies that the New York Times Company had developed.

As the twentieth century progressed, the general public developed an increasing scrutiny towards the news media- many viewed them as having a hidden agenda of their own altogether, and their motives and bias were frequently questioned. The environment that the old New York Times building created was one that reinforced this perception- masonry load bearing walls dictated small fenestration and further reinforced the perception of interior secrecy.

As one of the more progressive papers, the New York Times Company felt that their building no longer met their needs as a company or represented their corporate philosophy. The New York Times decided it was necessary that they build a new facility that focused on their core belief of transparency. They wanted to show that the process by which they provided the news was open to the general public and there were no hidden agendas. Obtaining this transparency would mean little if the building was not fit to change as technology advanced in the future. The open nature of the building in combination with the under floor air distribution allows for the times to completely reconfigure most their interior spaces as they see fit, whenever they see fit.

The company wanted to own a building that was not only healthy for the earth but also healthy for their own employees as well. In addition to other architecturally sustainable features, it was necessary to the New York Times Company as a client to obtain efficient and high quality environmental systems to maximize employee productivity and health- and with the core transparency design they required, they wanted the world to see it.

PROJECT DELIVERY METHOD

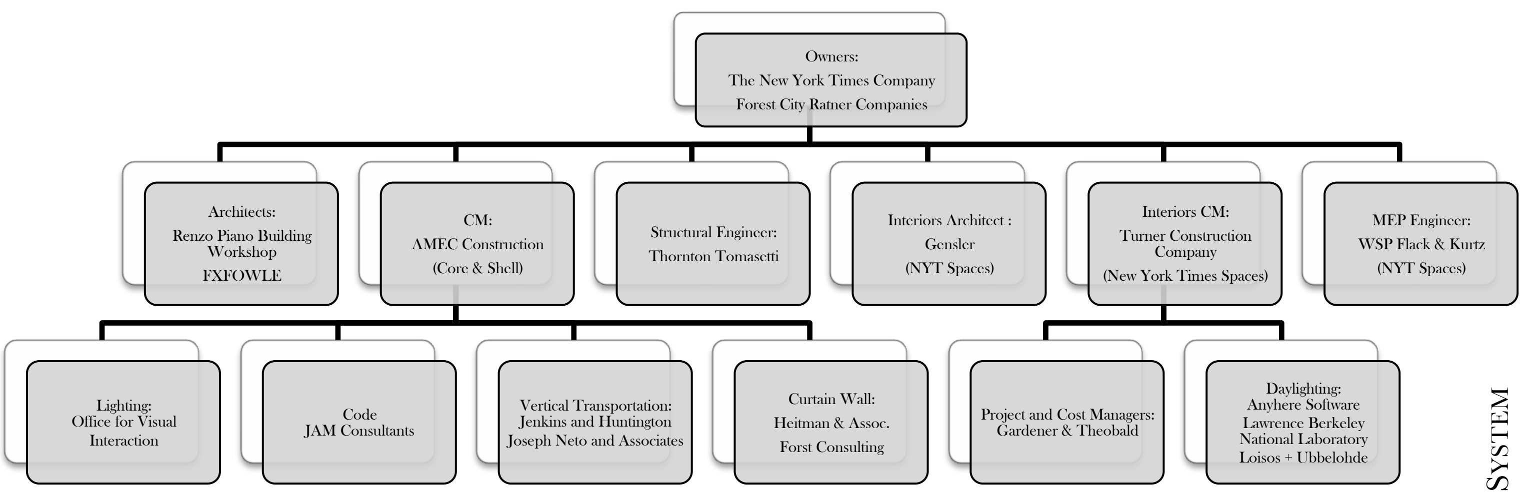
The New York Times Building utilizes a hybrid system of a Design-Bid-Build with a Construction Manager at-risk delivery. The core and shell delivery is by AMEC construction. Turner Construction Company delivers the interiors for the New York Times spaces. Floors 29 and above are owned by the developer Forest City Ratner Companies, and are to be constructed to the needs of the tenants. In a CM-at-risk delivery method, the owners hold contracts with the design team, architects and engineers, while the CM-at-risk holds contracts with the subcontractors. The construction management firm holds all risk by guaranteeing the cost and schedule to the owners. The hybrid system comes from the involvement of the design and construction teams having collaborative meetings to review and change the building design before construction while the owners were holding contracts with the parties. Architects Renzo Piano Building Workshop, along with architects FXFOWLE held design review meetings with interiors architect Gensler, as well as structural engineer Thornton Tomasetti and MEP engineers WSP Flack & Kurtz to discuss the design. These meetings were held before construction as well as throughout the construction of the building. There is also early involvement from specialty contractors, most notably with the curtain wall system. The early involvement from the interiors architect as well as specialty contractors is crucial to the success of the project.

CONTRACT TYPES

While the owners did not release the exact contract types, three main contract types were most likely utilized. These three types are cost plus fee, guaranteed maximum price and lump sum.

The New York Times Company and Forest City Ratner Company most likely held a GMP contract with AMEC Construction and The New York Times Company may have held a cost plus fee contract with Turner due to the repetitive nature of the interiors construction. While this is not exactly known, these are reasonable assumptions toward the delivery of the project.

With a typical Design-Bid-Build / CM-at-risk delivery method, the construction manager is contractually bound to the subcontractors. While not confirmed, it can be assumed that AMEC Construction holds contracts with the subcontractors, most likely being a lump sum contract.



PROJECT DELIVERY SYSTEM

STAFFING PLAN

There was significant difficulty in contacting the original CM (AMEC) to obtain information regarding how the CM/GC staff is assigned to the New York Times Building construction process, particularly because AMEC is based outside of the United States.

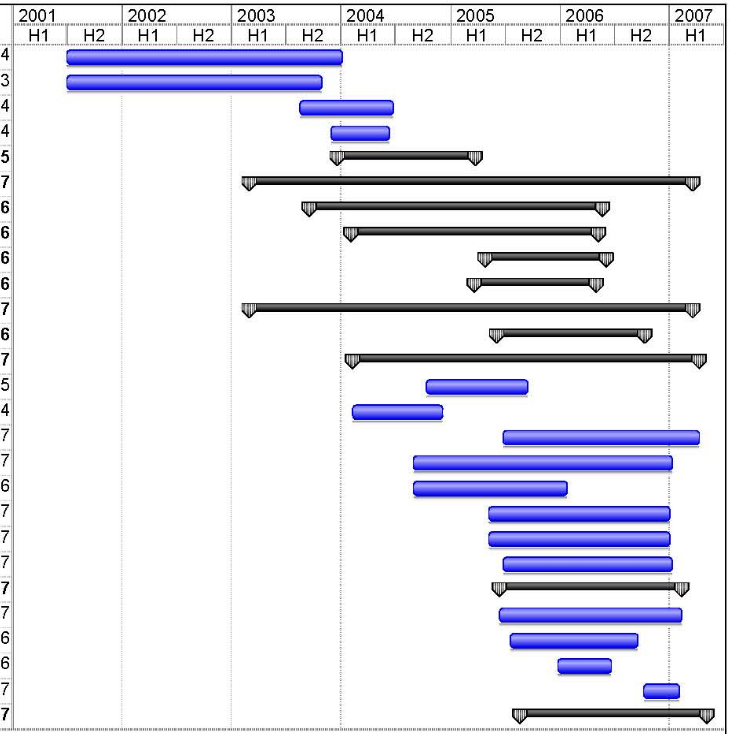
Further information will be added as soon as it becomes available.

APPENDIX A

PROJECT SCHEDULE SUMMARY

A summary schedule of the New York Times Building in Microsoft Project

ID	Task Name	Duration	Start	Finish
1	Owner Acquisition	657 days	Mon 7/2/01	Tue 1/6/04
2	Documents Available	609 days	Mon 7/2/01	Thu 10/30/03
3	Bid and Award	223 days	Tue 8/19/03	Thu 6/24/04
4	Site Mobilization/Abatement and Demo	140 days	Mon 12/1/03	Fri 6/11/04
5	**Foundations**	**330 days**	**Mon 12/22/03**	**Fri 3/25/05**
9	**Superstructure**	**1058 days**	**Mon 3/3/03**	**Wed 3/21/07**
10	**Steel and Metal Deck**	**699 days**	**Fri 9/19/03**	**Wed 5/24/06**
19	**Concrete**	**590 days**	**Fri 2/6/04**	**Thu 5/11/06**
24	**Intumescent Paint Fireproofing**	**288 days**	**Thu 4/28/05**	**Mon 6/5/06**
29	**Spray Fireproofing**	**291 days**	**Wed 3/23/05**	**Wed 5/3/06**
34	**Curtain Wall**	**1058 days**	**Mon 3/3/03**	**Wed 3/21/07**
45	**Roofing**	**354 days**	**Mon 6/6/05**	**Fri 10/13/06**
51	**Building Systems**	**827 days**	**Wed 2/11/04**	**Thu 4/12/07**
52	Utilities	242 days	Thu 10/14/04	Fri 9/16/05
53	MEP Coordination	214 days	Wed 2/11/04	Mon 12/6/04
54	B.A.T.C	469 days	Mon 6/27/05	Thu 4/12/07
55	HVAC	618 days	Wed 9/1/04	Fri 1/12/07
56	Plumbing	367 days	Wed 9/1/04	Thu 1/26/06
57	Fire Protection	432 days	Tue 5/10/05	Wed 1/3/07
58	Electrical	432 days	Tue 5/10/05	Wed 1/3/07
59	Fire Alarm	404 days	Mon 6/27/05	Thu 1/11/07
60	**Interior Finishes**	**434 days**	**Wed 6/15/05**	**Mon 2/12/07**
61	Core Program	434 days	Wed 6/15/05	Mon 2/12/07
62	Perimeter Program	304 days	Thu 7/21/05	Tue 9/19/06
63	NYT - Interior Program - Floor Handover	128 days	Tue 12/27/05	Thu 6/22/06
64	FCRC - Turnovers	86 days	Mon 10/9/06	Mon 2/5/07
65	**Finish and Closeout**	**446 days**	**Mon 8/22/05**	**Tue 5/8/07**



Project: PSU IPD BIM Summary Sche
Date: Mon 10/5/09

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

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APPENDIX B

PROJECT COST EVALUATION

Reference material for the cost evaluation in D4Cost and
RS Means Square Foot Estimate

Sunday, October 4, 2009

Statement of Probable Cost

Page 1

NYT - Aug 2004 - NY - N.Y.C.

Prepared By:		Prepared For:	
	, Fax:		, Fax:
Building Sq. Size:	1500000	Site Sq. Size:	72218
Bid Date:		Building use:	
No. of floors:	6	Foundation:	
No. of buildings:		Exterior Walls:	
Project Height:		Interior Walls:	
1st Floor Height:		Roof Type:	
1st Floor Size:		Floor Type:	
		Project Type:	

Division		Percent	Sq. Cost	Amount
00	**Bidding Requirements**	**2.65**	**7.64**	**11,464,738**
	Bidding Requirements	2.65	7.64	11,464,738
01	**General Requirements**	**7.58**	**21.88**	**32,820,265**
	General Requirements	7.58	21.88	32,820,265
02	**Site Work**	**0.62**	**1.80**	**2,696,973**
	Site Work	0.62	1.80	2,696,973
03	**Concrete**	**10.13**	**29.25**	**43,874,651**
	Concrete	10.13	29.25	43,874,651
04	**Masonry**	**2.77**	**7.99**	**11,989,406**
	Masonry	2.77	7.99	11,989,406
05	**Metals**	**7.80**	**22.52**	**33,782,993**
	Metals	7.80	22.52	33,782,993
06	**Wood & Plastics**	**0.32**	**0.94**	**1,404,110**
	Wood & Plastics	0.32	0.94	1,404,110
07	**Thermal & Moisture Protection**	**1.25**	**3.61**	**5,421,114**
	Thermal & Moisture Protection	1.25	3.61	5,421,114
08	**Doors & Windows**	**9.96**	**28.75**	**43,127,477**
	Doors & Windows	9.96	28.75	43,127,477
09	**Finishes**	**3.64**	**10.50**	**15,743,545**
	Finishes	3.64	10.50	15,743,545
10	**Specialties**	**2.28**	**6.57**	**9,852,009**
	Specialties	2.28	6.57	9,852,009
11	**Equipment**	**0.59**	**1.70**	**2,554,579**
	Equipment	0.59	1.70	2,554,579
12	**Furnishings**	**1.29**	**3.73**	**5,596,079**
	Furnishings	1.29	3.73	5,596,079
14	**Conveying Systems**	**2.33**	**6.71**	**10,069,183**
	Conveying Systems	2.33	6.71	10,069,183
15	**Mechanical**	**3.15**	**9.11**	**13,658,570**
	Mechanical	3.15	9.11	13,658,570
16	**Electrical**	**1.36**	**3.93**	**5,891,949**
	Electrical	1.36	3.93	5,891,949
21	**Fire Suppression**	**3.31**	**9.55**	**14,319,069**
	Fire Suppression	3.31	9.55	14,319,069
22	**Plumbing**	**1.82**	**5.24**	**7,862,137**
	Plumbing	1.82	5.24	7,862,137

23	**HVAC**	**12.15**	**35.08**	**52,622,158**
	HVAC	12.15	35.08	52,622,158
25	**Integrated Automation**	**0.36**	**1.04**	**1,564,597**
	Integrated Automation	0.36	1.04	1,564,597
26	**Electrical**	**9.55**	**27.56**	**41,335,182**
	Electrical	9.55	27.56	41,335,182
27	**Communications**	**6.16**	**17.79**	**26,681,147**
	Communications	6.16	17.79	26,681,147
28	**Electronic Safety and Security**	**2.90**	**8.37**	**12,559,593**
	Electronic Safety and Security	2.90	8.37	12,559,593
31	**Earthwork**	**1.41**	**4.07**	**6,104,975**
	Earthwork	1.41	4.07	6,104,975
32	**Exterior Improvements**	**3.10**	**8.95**	**13,426,292**
	Exterior Improvements	3.10	8.95	13,426,292
33	**Utilities**	**1.51**	**4.36**	**6,535,147**
	Utilities	1.51	4.36	6,535,147
Total Building Costs		**100.00**	**288.64**	**432,957,936**
Total Non-Building Costs		**100.00**	**0.00**	**0**
Total Project Costs		**--**	**--**	**432,957,936**

Costs per square foot of floor area

Exterior Wall	S.F. Area	120000	145000	170000	200000	230000	260000	400000	600000	800000
	L.F. Perimeter	420	450	470	490	510	530	600	730	820
Double Glazed Heat Absorbing Tinted Plate Glass Panels	Steel Frame	173.85	167.95	163.20	158.85	155.65	153.20	145.95	142.00	139.50
	R/Conc. Frame	161.85	156.15	151.55	147.35	144.25	141.85	134.75	130.95	128.55
Face Brick with Concrete Block Back-up	Steel Frame	168.15	162.95	158.65	154.85	152.05	149.85	143.50	140.05	137.85
	R/Conc. Frame	177.25	172.25	168.15	164.45	161.70	159.60	153.45	150.10	147.95
Precast Concrete Panel With Exposed Aggregate	Steel Frame	169.95	164.55	160.15	156.15	153.20	150.95	144.30	140.65	138.35
	R/Conc. Frame	157.90	152.75	148.45	144.60	141.75	139.55	133.15	129.60	127.40
Perimeter Adj., Add or Deduct	Per 100 L.F.	8.35	6.95	5.85	5.00	4.40	3.85	2.50	1.70	1.30
Story Hgt. Adj., Add or Deduct	Per 1 Ft.	3.30	2.95	2.60	2.30	2.15	1.95	1.40	1.20	0.95

***For Basement**, add $36.40 per square foot of basement area*

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs, for this type of structure, range from $93.60 to $228.35 per S.F.

Common additives

Description	Unit	$ Cost
Clock System		
20 room	Each	16,000
50 room	Each	39,100
Directory Boards, Plastic, glass covered		
30″ x 20″	Each	595
36″ x 48″	Each	1450
Aluminum, 24″ x 18″	Each	600
36″ x 24″	Each	675
48″ x 32″	Each	980
48″ x 60″	Each	2025
Elevators, Electric passenger, 10 stops		
3000# capacity	Each	430,500
4000# capacity	Each	433,000
5000# capacity	Each	437,000
Additional stop, add	Each	13,600
Emergency Lighting, 25 watt, battery operated		
Lead battery	Each	282
Nickel cadmium	Each	805

Description	Unit	$ Cost
Escalators, Metal		
32″ wide, 10′ story height	Each	143,000
20′ story height	Each	172,000
48″ wide, 10′ story height	Each	152,000
20′ story height	Each	180,500
Glass		
32″ wide, 10′ story height	Each	137,000
20′ story height	Each	165,000
48″ wide, 10′ story height	Each	48,300
20′ story height	Each	175,000
Smoke Detectors		
Ceiling type	Each	187
Duct type	Each	480
Sound System		
Amplifier, 250 watts	Each	2350
Speaker, ceiling or wall	Each	191
Trumpet	Each	365
TV Antenna, Master system, 12 oulet	Outlet	315
30 oulet	Outlet	203
100 outlet	Outlet	194

Important: See the Reference Section for Location Factors

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Model costs calculated for a 16 story building with 10′ story height and 260,000 square feet of floor area

Office, 11-20 Story

			Unit	Unit Cost	Cost Per S.F.	% Of Sub-Total
A. SUBSTRUCTURE						
1010	Standard Foundations	CIP concrete pile caps	S.F. Ground	9.92	.62	4.5%
1020	Special Foundations	Steel H-piles, concrete grade beams	S.F. Ground	62	3.86	
1030	Slab on Grade	4" reinforced concrete with vapor barrier and granular base	S.F. Slab	4.74	.30	
2010	Basement Excavation	Site preparation for slab, piles and grade beams	S.F. Ground	.26	.02	
2020	Basement Walls	4' foundation wall	L.F. Wall	78	.38	
B. SHELL						
	B10 Superstructure					
1010	Floor Construction	Concrete slab, metal deck, beams	S.F. Floor	29.90	28.03	24.8%
1020	Roof Construction	Metal deck, open web steel joists, beams, columns	S.F. Roof	9.76	.61	
	B20 Exterior Enclosure					
2010	Exterior Walls	N/A	–	–	–	12.2 %
2020	Exterior Windows	Double glazed heat absorbing, tinted plate glass wall panels *100% of wall*	Each	41.45	13.52	
2030	Exterior Doors	Double aluminum & glass doors	Each	5571	.60	
	B30 Roofing					
3010	Roof Coverings	Single ply membrane, fully adhered; perlite/EPS composite insulation	S.F. Roof	5.60	.35	0.3%
3020	Roof Openings	N/A	–	–	–	
C. INTERIORS						
1010	Partitions	Gypsum board on metal studs *30 S.F. Floor/L.F. Partition*	S.F. Partition	10.20	2.72	17.1%
1020	Interior Doors	Single leaf hollow metal *400 S.F. Floor/Door*	Each	875	2.19	
1030	Fittings	Toilet partitions	S.F. Floor	.42	.42	
2010	Stair Construction	Concrete filled metal pan	Flight	18,950	2.55	
3010	Wall Finishes	60% vinyl wall covering, 40% paint	S.F. Surface	1.33	.71	
3020	Floor Finishes	60% carpet tile, 30% vinyl composition tile, 10% ceramic tile	S.F. Floor	4.81	4.81	
3030	Ceiling Finishes	Mineral fiber tile on concealed zee bars	S.F. Ceiling	6.38	6.38	
D. SERVICES						
	D10 Conveying					
1010	Elevators & Lifts	Four geared passenger elevators	Each	479,050	7.37	6.4%
1020	Escalators & Moving Walks	N/A	–	–	–	
	D20 Plumbing					
2010	Plumbing Fixtures	Toilet and service fixtures, supply and drainage *1 Fixture/1345 S.F. Floor*	Each	4022	2.99	2.9%
2020	Domestic Water Distribution	Oil fired water heater	S.F. Floor	.25	.25	
2040	Rain Water Drainage	Roof drains	S.F. Roof	2.08	.13	
	D30 HVAC					
3010	Energy Supply	N/A	–	–	–	13.5 %
3020	Heat Generating Systems	Boiler, heat exchanger and fans	Each	388,485	2.04	
3030	Cooling Generating Systems	Chilled water, fan coil units	S.F. Floor	13.59	13.59	
3050	Terminal & Package Units	N/A	–	–	–	
3090	Other HVAC Sys. & Equipment	N/A	–	–	–	
	D40 Fire Protection					
4010	Sprinklers	Sprinkler system, light hazard	S.F. Floor	2.25	2.25	2.4%
4020	Standpipes	Standpipes and hose systems	S.F. Floor	.51	.51	
	D50 Electrical					
5010	Electrical Service/Distribution	2400 ampere service, panel board and feeders	S.F. Floor	1.10	1.10	15.9%
5020	Lighting & Branch Wiring	High efficiency fluorescent fixtures, receptacles, switches, A.C. and misc. power	S.F. Floor	10.99	10.99	
5030	Communications & Security	Addressable alarm systems, internet and phone wiring, emergency lighting	S.F. Floor	5.81	5.81	
5090	Other Electrical Systems	Emergency generator, 200 kW, uninterruptible power supply	S.F. Floor	.51	.51	
E. EQUIPMENT & FURNISHINGS						
1010	Commercial Equipment	N/A	–	–	–	0.0 %
1020	Institutional Equipment	N/A	–	–	–	
1030	Vehicular Equipment	N/A	–	–	–	
1090	Other Equipment	N/A	–	–	–	
F. SPECIAL CONSTRUCTION						
1020	Integrated Construction	N/A	–	–	–	0.0 %
1040	Special Facilities	N/A	–	–	–	
G. BUILDING SITEWORK		**N/A**				
				Sub-Total	115.61	**100%**
	CONTRACTOR FEES (General Requirements: 10%, Overhead: 5%, Profit: 10%)			25%	28.92	
	ARCHITECT FEES			6%	8.67	
				Total Building Cost	**153.20**	

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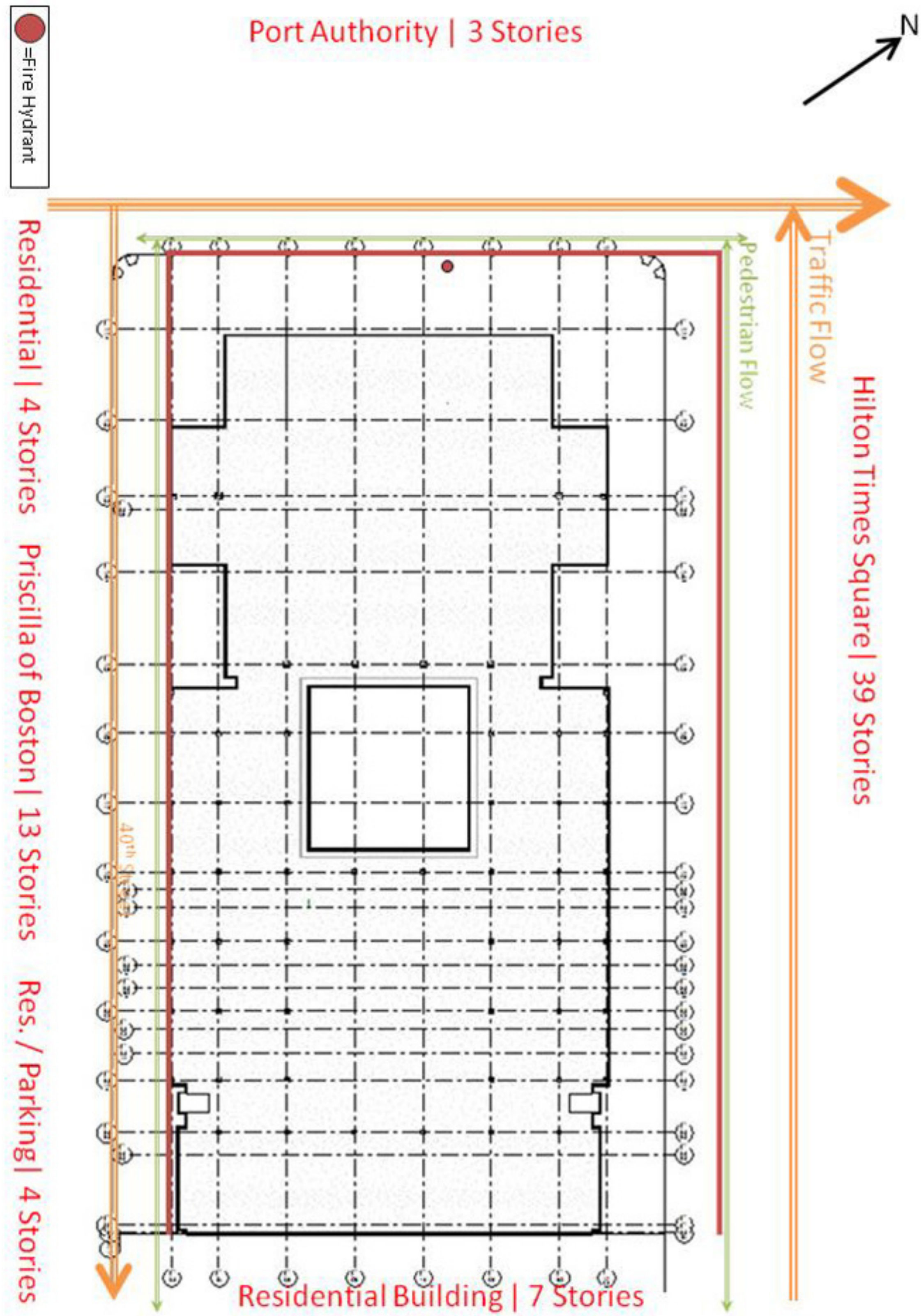
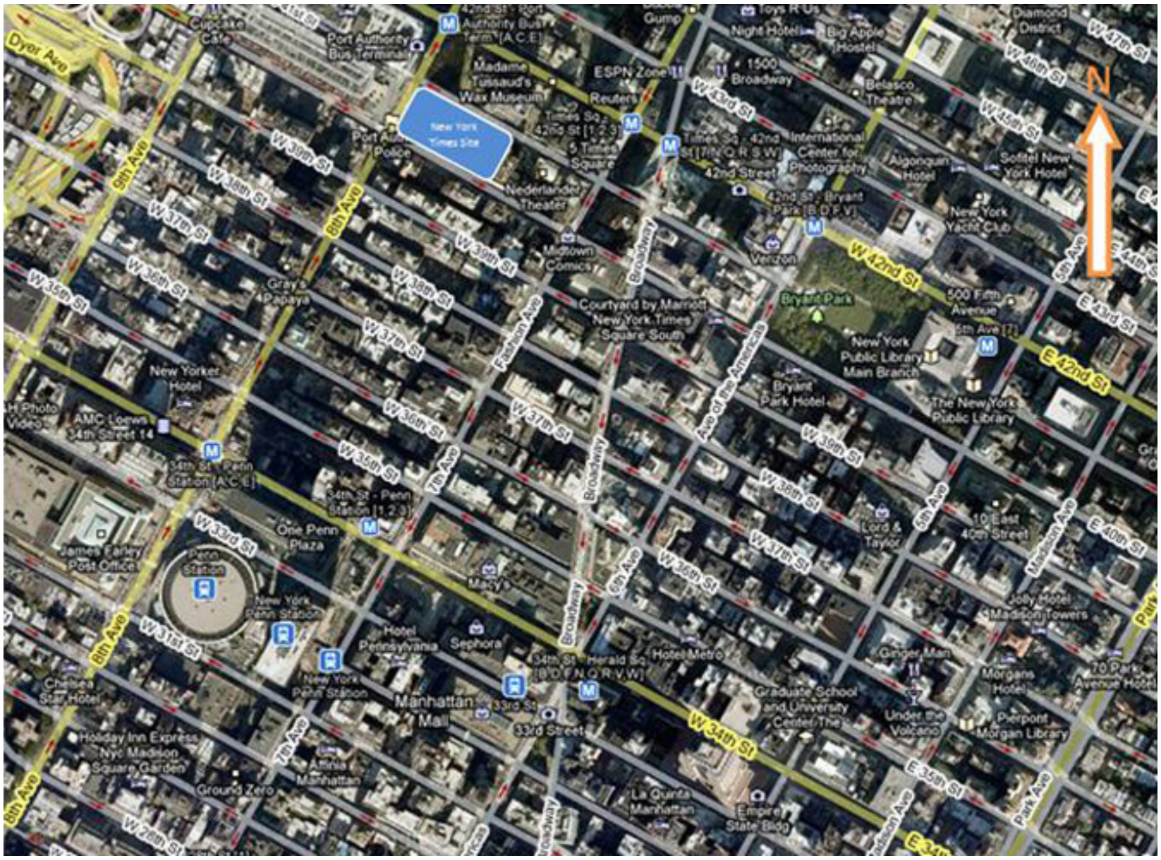
APPENDIX C

SITE PLAN OF EXISTING CONDITIONS



Assumed site plan of existing conditions. Actual site plan will be added as soon as it is obtained from the contractor.



General site location with respect to Manhattan, courtesy of maps.google.com

Temporary walkway site fencing and overhead protection during construction period, courtesy of maps.google.com