

1. Flood Zone Compliance
 - a. **What is this** – This inspection is to verify that the structure was built as indicated on the approved drawings. This inspection is only required when the structure is being built in a flood zone as indicated by FEMA FIS 360497 or FEMA FIRMs 360497.
 - b. **What's involved** – The special inspector shall perform a flood zone compliance inspection showing that the building was constructed in the appropriate location and at the proper elevation using methods that will minimize flood damage. For new construction, an elevation progress inspection will be required showing the elevation of the lowest floor.
2. Fire Alarm Test
 - a. **What is this** – This inspection is performed when a new fire alarm system is being installed or an existing system is being modified. It is used to ensure that the system will function properly in the event of its use.
 - b. **What's involved** – The special inspector will make a field visit after the complete fire alarm has been installed and is ready for testing. The inspector will verify that all horns sound, all strobes light up, all devices are installed in their appropriate location as shown on the approved drawings and that the installation was completed in a professional manner. The inspector will also make sure that all necessary interior and exterior devices are tied in and programmed properly so that they activate simultaneously.
3. Photoluminescent Exit Path Markings
 - a. **What is this** – This inspection is required to verify that exit paths are clearly marked using the appropriate signage.
 - b. **What's involved** – The special inspector shall verify that exit signs have been installed as indicated on the approved construction documents. The inspector shall verify that proper photoluminescent materials were used, proper directional marking is in place, and battery backup has been installed. A separate TR7 Technical Report shall be submitted to the NYC DOB.
4. Emergency Power Systems
 - a. **What is this** – This inspection shall be performed whenever the use of the building requires it to have emergency power and an onsite emergency power generator is installed.
 - b. **What's involved** – The special inspector will field check to see that the power system was installed according to the approved engineering drawings. He will look at the quality of the installation, the materials used, the supports, the feeder lines and other aspects to ensure that they have been completed with good building practice.
5. Structural Steel – Welding
 - a. **What is this** – This inspection is to verify that all welding greater than 5/16" of structural steel members was performed properly.

- b. **What's involved** – As per NYC Building Code 1704.3.1 all welding must be in compliance with the American Welding Society (AWS) section D1.1 and verified by the professional engineer signing the TR-1 form.
- 6. Structural Steel – Erection & Bolting
 - a. **What is this** – This inspection is to verify that the steel frame was built according to the approved drawings.
 - b. **What's involved** – PE shall verify that the steel frame was built according to the approved drawing. Inspection should include steel members, bracing, stiffeners, high strength bolts and connections. The inspection of the high strength bolts that require a “snug fit” should verify that the joining material have been drawn together. Bolts that are tightened using the “turn of nut” method with matchmarking methods can be inspected periodically. If using a calibrated wrench method or “turn of nut” method without matchmarking, continuous inspection should be performed.
- 7. Structural Cold – Formed Steel
 - a. **What is this** – This is a special inspection for cold formed steel to verify that the steel frame was built according to the approved drawings and proper shoring techniques are being used.
 - b. **What's involved** – Inspection should include materials verification for connectors, steel members and welding materials, inspection of high strength bolts, inspection of welding and inspection of steel frame joint details. Inspector shall verify that the materials used were clean, flat and straight or if straightening was done, that it was performed in an approved manner. Sections shall be verified in conformance with the approved drawings. Cut members shall be clean and free from burrs, notches or jagged edges. Finally all temporary bracing/shoring shall remain in place until the special inspector deems them no longer necessary.
- 8. Concrete – Cast in Place
 - a. **What is this** – This inspection is to verify that any cast in place concrete was done properly. It is not needed when the amount of concrete is less than 50 cubic yards and is non structural.
 - b. **What's involved** – The inspector should verify that the proper size reinforcing steel was used with the required spacing. All welding was performed to AWS standards. Any anchors that are placed in concrete before it is poured should be inspected. The inspector should verify that the proper design mix was used, perform slump and air entrapment tests and verify that appropriate techniques were used to lay the concrete.
- 9. Concrete – Pre-Cast
 - a. **What is this** – This inspection is to verify that any pre cast concrete used has been properly formed and assembled.
 - b. **What's involved** – Provided that the pre casting plant has been approved following acceptable manufacturing processes and techniques, the inspector should periodically inspect the erection and assembly of the pre-cast members.
- 10. Concrete – Pre-stressed

- a. **What is this** – This inspection is to verify that any pre-stressed concrete used has been properly tensioned as well as verifying the properties of the concrete being used.
- b. **What's involved** – Depending on if the pre-stressed concrete is either cast in place on site or pre-cast off site, the inspector should verify what they would typically inspect for either type and in addition they should inspect the application of the tensioned steel used.

11. Masonry

- a. **What is this** – This inspection is to verify that any masonry construction, usually clay or glass masonry, was built properly according to applicable standards. It is not required if the building is classified as non essential or has been designed and built according to all applicable building code standards.
- b. **What's involved** – The inspector will generally look at the construction techniques being used as well as the materials. He will look to see that mortar is being prepared and used in the required timeframe, the masonry units are being spaced properly, anchors and reinforcements are of the proper size and spacing as required and if applicable that the masonry is being protected during freezing weather or extreme heat.

12. Wood – Off-Site Fabrication of Structural Elements

- a. **What is this** – This inspection is for structural elements constructed of wood that are built off-site. Off-site fabricators should be approved and carry their own certification showing that they follow standard fabrication practices that are acceptable to the NYC DOB.
- b. **What's involved** – When the off-site vendor is certified, they should provide the inspector with a copy of their certification to submit to the DOB.

13. Wood – Installation of High Load Diaphragms

- a. **What is this** – This inspection is required for high load diaphragms as indicated in chapter 23 of the NYC Building Code.
- b. **What's involved** – The inspector will review the fabricated diaphragm and inspect it for conformance with the approved engineering drawings. The inspector will look at the material grade, thickness, supporting member dimensions, fastener size and fastener frequency.

14. Wood – Installation of Metal Plate Connected Trusses

- a. **What is this** – This inspection is used for buildings that use wood trusses with their structural members connected using metal plates.
- b. **What's involved** – The inspector will field check to ensure that the trusses are constructed properly from the proper grade material using the correct size members. He will also look to see that the installation is as per the approved drawings including looking at the bearing surfaces and fasteners used and quantity of fasteners used. The special inspector will notify the contractor when temporary bracing can be removed. If pre-fabricated trusses are used, the fabricator's certificate of compliance shall be obtained and submitted as proof.

15. Wood – Installation of Prefabricated I-Joists

- a. **What is this** –This inspection should be performed when pre-fabricated I-Joists are used in the construction of a building.
 - b. **What's involved** – The special inspector shall verify that the members installed are undamaged, straight, of the correct size, connected using the proper fasteners in the appropriate quantities, in the correct location as per the approved drawings and properly supported using temporary supports. The inspector will determine when the temporary bracing can be removed.
16. Soils – Site Preparation
- a. **What is this** – This inspection is to confirm that the footing site has been prepared properly according to the soils report.
 - b. **What's involved** – The inspector will be verifying that the site is properly prepared so that the fill material can be placed. The site should be clear of construction debris and not frozen or saturated with water.
17. Soils – Fill Placement & In Place Density
- a. **What is this** –This inspection is to ensure that the proper fill is being used in the correct quantity and that it is sufficiently compacted.
 - b. **What's involved** – This inspection involves checking for undisturbed soil or properly compacted fill, that the bottom of the footings are not sloped more than 10% and that the footing area is free of construction debris. He should confirm that the fill density is in agreement with the approved report.
18. Soils – Investigations (Borings/Test Pit)
- a. **What is this** –This is an investigatory soil sampling that is performed to qualify the bearing soil accordingly. It may not be necessary if soil boring reports already exists on record. A separate TR4 Technical Report must be filed showing the number of borings, their locations and their depths.
 - b. **What's involved** – The registered design professional will prepare a report compiling the findings of the borings. The design professional is required to witness at least 50 percent of the borings and any borings not witnessed directly by the design professional shall be witnessed by someone else whose name and address should be included in the report.
19. Pile Foundations & Drilled Pier Installations
- a. **What is this** –This inspection is performed to ensure that pile foundations are installed according to the engineered drawings. A report is compiled with the findings. A separate TR5 Technical Report must be completed showing the pile material, dimensions, quantity, design load capacity and actual load capacity.
 - b. **What's involved** – The inspector should be present during the installation of the piles and during the load testing of the piles. Depending on the type of piles being used, the inspector will look for certain things such as the driving techniques and the concrete placement methods. The inspector will witness the load testing of the piles and compile the report summarizing the results and ensuring that they are within the designed parameters.
20. Pier Foundations

- a. **What is this** – This inspection is performed whenever a pier foundation is used for a structure. This inspection is not required when the pier is supporting a lightweight fence, recreational equipment, site furnishings and similar construction unless specifically called for on the drawings by the engineer.
- b. **What's involved** – The inspector will verify that the pier was constructed to the proper dimensions and of the proper materials. When the foundation requires multiple piers, the inspector will verify that the quantity and placement of the piers is according to the approved drawings.

21. Underpinning

- a. **What is this** – This inspection is needed whenever the design of a new building requires underpinning on an adjacent structure to prevent movement of that structure. The design engineer will determine the underpinning requirements and the sequence that the excavation will take place in.
- b. **What's involved** – The inspection will verify that the method of underpinning and the frequency of supports are according to the design drawings.

22. Wall Panels, Curtain walls and Veneers

- a. **What is this** – This inspection is required for exterior architectural wall panels and veneers on buildings that are greater than 40 feet in height.
- b. **What's involved** – The inspector will field check the structure during component installation to verify that proper joining and anchorage are being used, drainage and flashing requirements are being followed and that the structure is properly aligned. The extent of this inspection will depend on the type of wall panel or veneer used which is why the inspector should become familiar with this information beforehand so that they can plan when to inspect each component properly. In the event that an unsafe wall condition exists, the inspector is required to notify the department of buildings prior to wall coverings being placed.

23. Sprayed Fire-Resistant Materials

- a. **What is this** – This inspection is to verify that the fire resistant material was applied properly over the structure at the specified thickness to ensure that it has bonded correctly and will provide the designed fire protection rating.
- b. **What's involved** – The inspector should field check the site prior to spraying to verify that the surfaces were properly prepared according to manufacturer's written recommendations. The inspector will then follow up and test a representative sample area to ensure that the fire resistant material has cured and bonded correctly and that it is within tolerance for the required thickness.

24. Exterior Insulation Finish Systems

- a. **What is this** – This is an inspection that is required whenever an exterior insulation finish system (EIFS) is used on a building where it extends more than 15 feet above grade.

- b. **What's involved** – This inspection involves verification as it pertains to the method of attachment, waterproofing, drainage provisions, mold prevention methods and adherence to the manufacturers written installation instructions.

25. Alternative Materials

- a. **What is this** – This is an inspection that should be performed whenever atypical construction materials are used or when the application of common building materials is unusual in nature.
- b. **What's involved** – The inspector shall verify that the construction is being performed as the design engineer intended on the approved construction documents as they may not be how the original equipment manufacturer intended.

26. Smoke Controls Systems

- a. **What is this** – This inspection is required to verify that the smoke control systems have been installed properly and that they will function accordingly in the event that they are needed.
- b. **What's involved** – The inspector should be present during the installation of ductwork to confirm that the smoke control devices are being installed in their proper locations as indicated on the approved drawings. They may become hidden after the ductwork is insulated. The inspector should return after substantial completion to perform pressure difference testing, flow measurements and to confirm that the system can properly detect smoke and behave accordingly.

27. Mechanical Systems

- a. **What is this** – This inspection will be performed to confirm that the mechanical systems specified are being installed according to the manufacturer's recommendations and in accordance with the approved engineering drawings.
- b. **What's involved** – The inspector should make several field checks at various stages of construction to ensure that all applicable devices are being installed properly and at their proper location. They will verify that the ductwork is properly sealed and that the appropriate amount of air is being supplied or exhausted from each space by reviewing the air balancing report. The inspector will confirm that proper supports were installed, required signage and labeling has been posted, all fire and smoke dampers have been installed and function properly and where applicable noise producing equipment within 100 feet of a habitable room window shall be tested for conformity with applicable noise ratings.

28. Fuel Oil Storage and Fuel Oil Piping Systems

- a. **What is this** – This inspection is required whenever built up fuel oil systems are specified and installed. Testing for fuel oil storage tanks less than 660 gallons can be exempted provided that the tank was provided with a manufacturer's certificate stating that it was tested to a standard that meets or exceeds the NYC DOB standards.
- b. **What's involved** – The inspector will verify that the system was installed according to the approved drawings and that the installation is in accordance with any applicable standards. The tank(s), piping and valves will need to pass a hydrostatic test performed

by the installation contractor at 1 ½ times the working pressure of the system. A record should be created by the installation contractor showing the test pressure and the testing company's name. The inspector will review these documents to ensure that the system is safe to operate.

29. High Pressure Steam Piping (Welding)

- a. **What is this** – This inspection is required to verify the integrity of high pressure steam piping joints whenever welded fittings are used as opposed to screw type fittings.
- b. **What's involved** – The special inspector will verify that the welder is qualified to perform the welding by reviewing his certifications and that the welding material being used is suitable according to applicable welding standards. The inspector will visually inspect the welds to be sure that they are clean, uniform and free of visible pores. A hydrostatic pressure test will be performed by the installation contractor and may be used to gauge the integrity of the welds for systems less than 90 psig. For systems higher than 90 psig, radiographic testing will need to be performed and the results analyzed by the inspector to verify the integrity of the welds.

30. Fuel – Gas Piping (Welding)

- a. **What is this** – This inspection is to verify the integrity of the welds whenever welded fittings are specified, typically in high pressure gas applications.
- b. **What's involved** – The special inspector will verify that the welder is qualified to perform the welding by reviewing his certifications and that the welding material being used is suitable according to applicable welding standards. The inspector will visually inspect the welds to be sure that they are clean, uniform and free of visible pores. A hydrostatic pressure test will be performed by the installation contractor and may be used to gauge the integrity of the welds. Radiographic testing will be required for gas piping that is larger than 4 inches or piping that has welded fittings.

31. Structural Safety - Structural Stability

- a. **What is this** – This inspection is performed whenever construction work consists of structural alterations to the existing structure or adjacent structure(s). Design will need to be performed by a registered design professional for safely completing the construction.
- b. **What's involved** – The special inspector should meet with the contractor on site to determine the design that is required and set up a timetable for delivering construction drawings and for the sequence that the construction should proceed in. A log book shall be created and maintained to record the structural inspections performed. The special inspector shall maintain the log book and a copy shall be maintained at the jobsite. If construction is being performed at occupied multiple dwellings, the inspector shall verify compliance with the approved Tennant Protection Plan.

32. Mechanical Demolition

- a. **What is this** – This inspection is needed when full or partial demolition of a structure is being performed and mechanical equipment other than hand held tools are being used.

- b. **What's involved** – The special inspector is required to visit the site a minimum of three times: before the demolition begins, during the demolition and after the demolition has been completed to verify that the contractor is performing the work according to the submitted demolition plans. The inspector will check that the demolition is being carried out to the proper extent with adequate protective measures and that the proper phasing is used.
- 33. Excavation – Sheeting, Shoring, and Bracing
 - a. **What is this** – This inspection is needed when there is excavation work being performed and the trench is more than 5 feet in depth. It can be exempted if the sides of the trench are sloped at 45 degrees or less to prevent the sides from collapsing. It can also be exempted if it is “rock cut excavation.”
 - b. **What's involved** – When this inspection is required, a special inspector must field check the site and will inspect to see that the proper shoring members are being used and the spacing is as called for on the approved drawings. Steel sheet piling can be substituted for wood sheet piling.
- 34. Soil Percolation Test – Drywell
 - a. **What is this** – This inspection is needed when a drywell is being specified on site and no existing soil studies have been performed.
 - b. **What's involved** – The excavation contractor will need to excavate a test pit for the soil percolation test. The special inspector will need to witness and record the results of the test. Should the results show that the proposed system cannot be installed due to inadequate soil capacity, the registered dry well designer shall be notified and changes made accordingly.
- 35. Soil Percolation Test – Septic
 - a. **What is this** – This inspection is needed when a septic system is being specified on site and no existing soil studies have been performed. Separate forms may also be required for septic systems besides this inspection on the TR1.
 - b. **What's involved** – The excavation contractor will need to excavate a test pit for the soil percolation test. The special inspector will need to witness and record the results of the test. Should the results show that the proposed system cannot be installed due to inadequate soil capacity, the registered dry well designer shall be notified and changes made accordingly.
- 36. Site Storm Drainage Disposal and Detention System Installation
 - a. **What is this** – This special inspection is required when storm drainage detention facilities are specified on the engineering drawings.
 - b. **What's involved** – The special inspector will field check to verify the materials of construction, proper bedding of piping, placement of fill materials, volume of the detention facilities, installation of flow control devices, quality of the installation and the overall conformance with the approved drawings.
- 37. Septic System Installation

- a. **What is this** – This special inspection is required when a septic system is specified on the engineering drawings.
- b. **What's involved** – The special inspector will field check to verify the materials of construction, proper bedding of piping, placement of fill materials, volume of the detention facilities, installation of flow control devices, quality of the installation and the overall conformance with the approved drawings. The inspector will verify the results of the hydrostatic testing to ensure the septic system is water tight.

38. Sprinkler Systems

- a. **What is this** – This inspection is required when a new sprinkler system is being installed in a building or an existing sprinkler system is being altered. It is to ensure that the sprinkler system has been installed properly and all required testing has been performed.
- b. **What's involved** – The special inspector shall witness all required tests, and shall verify that all installations of all materials, fittings, hangers, assemblies and signage are in accordance with the approved construction documents and that the contractor has transmitted required maintenance literature and instruction to the owner. The special inspector shall verify that the material and test certification forms have been transmitted to the Fire Department and the department of buildings. Special inspection of the hydrostatic test is not required when the NYC DOB has already witnessed such test.

39. Standpipe Systems

- a. **What is this** – This inspection is required when a new standpipe system is being installed in a building or an existing standpipe system is being altered. It is to ensure that the standpipe system has been installed properly and all required testing has been performed.
- b. **What's involved** – The special inspector shall witness all required tests, and shall verify that all installations of all materials, fittings, hangers, assemblies and signage are in accordance with the approved construction documents and that the contractor has transmitted required maintenance literature and instruction to the owner. The special inspector shall verify that the material and test certification forms have been transmitted to the Fire Department and the Department of Buildings. Special inspection of the hydrostatic test is not required when the NYC Department of Buildings has already witnessed such test.

40. Heating Systems

- a. **What is this** – This inspection is required when boilers or heating systems greater than 350,000 BTU/hr are being installed in a building.
- b. **What's involved** – The special inspector or approved insurance company will field check the installation of the systems to ensure that it is in compliance with the approved drawings. The inspector will look at the chimney connections, test gauges, supports and safety relief valves. If the installation has a pressure vessel such as a boiler, a copy of the manufacturer's certificate stating that the pressure vessel was built and tested to ASME standards will be required. A hydrostatic test should be performed by the contractor and witnessed by the inspector before the system can be put into operation.

41. Chimneys

- a. **What is this** – This inspection is required when a new chimney is being installed or when alterations to an existing chimney are being made.
- b. **What's involved** – The special inspector shall field check the installation of the chimney to ensure that it is in conformance with the approved drawings. The inspector will look for proper materials, clearance to combustibles, vent piping slope, necessary cleanouts, and adequate supports and vent termination. A smoke test should be performed on severely altered chimneys or newly constructed chimneys to gauge their air tightness. The results of the smoke test should be submitted to the Department of Buildings.

42. Firestop, Draftstop, and Fireblock System

- a. **What is this** – This inspection is required when through penetrations are made to fire rated assemblies and the penetration require fire stopping or fire blocking.
- b. **What's involved** – The inspector will go to the field, before the fire stopping is concealed, to verify the material used, quality of installation and the location of penetrations. If a listed system is used, the inspector shall verify that the system was installed according to the manufacturer's written instructions.

43. Aluminum Welding

- a. **What is this** – This inspection is required when structural members made of aluminum are being used and welded. This is exempted if the welded connection has a stress less than 50 percent of the basic allowable stress for the weld.
- b. **What's involved** – The special inspector will verify that the welder is qualified to perform the welding by reviewing his certifications and that the welding material being used is suitable according to applicable welding standards. The inspector will visually inspect the welds to be sure that they are clean, uniform and free of visible pores. All welding must be in conformance with AWS standards.

44. Seismic Isolation Systems

- a. **What is this** – This inspection is required when the building design requires a seismic isolation system.
- b. **What's involved** – The special inspector will perform periodic inspections of the seismic isolation units during fabrication and installation to verify that they are in agreement with the approved engineering drawings and that they have been installed according to the manufacturer's written recommendations.

45. Concrete Test Systems

- a. **What is this** – This is required for larger projects using concrete in excess of 50 cubic yards for structural supports. It is used to gauge the strength of the concrete that has been poured to ensure that all batches have met the strength specified on the approved drawings.
- b. **What's involved** – The contractor shall prepare concrete test columns for field curing or lab curing as specified on the drawings at a frequency of once for every 50 cubic yards or at least once a day if the amount of concrete poured daily is less than 50 cubic yards. The test columns will be cured for the required time frame and then sent to a lab to

undergo compressive tests to gauge their final strength. When coring is needed, the cores should be drilled and shipped to the appropriate testing facility for load testing. The inspector will receive these results and verify that they are in agreement with that specified on the approved drawings.

46. Concrete Design Mix

- a. **What is this** – This inspection is required when the project has more than 50 cubic yards of concrete that is used for structural purposes and as such is subject to durability requirements of the NYC BC. This inspection is only needed when concrete proportioning is done based on various trial mixtures to gauge the strength of the mixture.
- b. **What's involved** – The special inspector shall verify that the concrete mix being used meets that of the specified design mix prior to the start of construction by performing trial batches and analyzing the strength of the concrete. Multiple batches will need to be mixed and properly recorded and included in the estimate for the concrete strength.