DIVISION 6

SECTION 6A ROUGH CARPENTRY

6A.01 GENERAL: Comply with all of the Contract Documents.

6A.02 SCOPE OF WORK: Refer to "Division Scope of Work"

6A.03 WORK NOT INCLUDED

A. The following items are excluded from the work of this section:

1. Gypsum Board Assemblies by Section 9B.

2. Finished Flooring and Finished Carpentry.

6A.04 DESCRIPTION OF WORK

A. Provide all labor, materials, equipment, services, etc., necessary or required for the work of this Section, as indicated on the drawings, specified and as required by the existing conditions for proper performance and completion, in accordance with the requirements of the Contract Documents.

B. Items of work shall consist generally of, but not limited to the following:

1. Perform all rough carpentry work including rough framing, grounds, blocking, nailing strips, furring and similar rough carpentry for the work of all trades.
2. Temporary enclosures for exterior openings.
3. Wood grounds and blocking.
4. All staging, blocking and shims.
5. New aluminum window sub-frames.
6. Plywood sub-flooring and underlayment.
7. Blocking and backer panels for kitchen cabinets, closet shelves and handicapped grab bars.
8. Suspended ceiling system at all floors.
9. Installation of metal and wood framing for partitions and furring at masonry walls.

6A.05 PRODUCTS

A. Lumber, General

1. Lumber Standards: Comply with DOC PS 20-05 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee.

2. Grade-Stamps: Furnish lumber with grade-stamps of inspection agency to show compliance with grading rules, and identifying grading agency, grade, species, moisture content and mill number.

3. Provide lumber sizes as required by PS 20, (Product Standard) unless otherwise shown.

   a. Provide dressed (surfaced) lumber, S4S (surfaced four sides).

   b. Provide seasoned lumber with 19% maximum moisture content.

B. Framing Lumber (floor and roof joists)

2. For floor and roof framing, provide Douglas Fir-Larch #2 or better which meets the following values:

   a. Fb (minimum extreme fiber stress in bending); 1000 psi for repetitive loads & 875 psi for single loads.

   b. E (minimum modulus of elasticity); $1.6x10^6$ psi.

   c. All lumber shall be kiln dried to maximum moisture content of 19% & plywood to 15%.

C. Framing Lumber (for partitions, if required)

1. All partition lumber shall be; light framing lumber of Western or Southern species # 2 common or standard grade per WCLIB or WWPA Rules.

2. Wood stud (non-bearing) partitions shall be 2" x 4", 16" o.c. maximum, doubled at ends, jambs, and heads of openings, and tripled at corners. Provide 2" x 4" staggered bridging at halfway level of stud partitions. Provide top plates and bottom plates as detailed. All partitions are to be plumb.

3. Load bearing partitions shall be 4" x 4" studs, 12” or 16" o.c. (see plans for spacing). Top and bottom base plates for load bearing partitions shall be 4” x 4”, unless otherwise shown on plans. Provide 4” x 4” staggered bridging at halfway level of stud partitions.

4. All necessary furring, accessories, framing and blocking shall be provided and installed at walls and ceilings. These shall include, but not be limited to framing and blocking for windows, framing for medicine cabinets, mailboxes, door frames, kitchen cabinets etc.

D. Miscellaneous and Treated Lumber:

1. All lumber for bridging, nailers, etc., shall be construction grade or better.

2. Provide bucks, nailers, blocking, furring, grounds, stripping, and similar members where shown. Provide lumber of sizes and shapes shown on drawings.

3. Window framing (1” x 6”) and blocking shall be preservative-treated wood. The wood preservative must be free of arsenate and other EPA listed hazardous compounds. Submit product data and certification for wood treatment.

6A.06 WOOD FRAMING

A. Subject to Architect's or Engineer’s inspection, replace any existing damaged or defective floor/roof joists and bridging.

1. All new joists (See Architect drawings for sizes and span) shall be properly secured to supports. All bridging shall be provided and installed at 8'-0" maximum on center.

2. All new floor headers and trimmers and other horizontal structural members shall be set with the crown edge upward.

3. Joists shall have not less than 4" bearing with slate leveling shims.

4. The ends of wood joists resting in masonry or concrete walls shall be fire-cut to a bevel of (3”) three inches in their depth, as per New York City Building Code.

5. Trimmers, double trimmers and headers shall be securely staggered (spiked or bolted) and supported with an approved type joists hangers (bridal irons).

6. New joists shall be aligned to obtain matching elevations with adjacent surfaces. At bearing ends of new wood joists into existing or new structural steel beams, the joists shall not be notched more than one quarter of the actual depth. Bridal irons shall be used at these locations where notching of the wood joists exceeds one quarter of the actual depth of the joists.

7. Unless otherwise indicated on drawing, install 2” x 3” flat wood sleepers (Pine or Douglas Fir-Larch), 12 inches of center. Anchor to slab with sleeper anchors 16” of center. Shim level with adjustable pads to required height with 12”of center. See drawings for references.

6A.07 ROUGH HARDWARE

A. The contractor shall provide all rough or framing hardware, such as nails, screws, bolts, anchors, hangers, clips, inserts, miscellaneous fastenings and similar items of the best

quality and of the proper size and kind, in a rigid and substantial manner. Fastenings for exterior use shall be non-corrosive (galvanized).

1. Wood Joists Anchors, Bridle Iron (Hanger) Beam Straps and Cross Bridging:

   a. Building wall anchors;

      - 1 1/4" x 1/4" x 4'-0" (parallel joist anchors with back-hook, installed 6'- 0" on center)

      - 1 1/4" x 1/4" x 1'-6" (end joist anchors, installed every fourth joist)

   b. Bridal irons (hangers) for framing of joists, double trimmers and headers shall be constructed with 1/4" thick (min) flat steel bars. 2" long end drop-hooks shall hold bridle iron securely in place with non-shearing nails. Bridal iron dimensions by design.

   c. Joist clamp straps 1 1/4" x 1/4" x 1'-4" shall be used to anchor wood joists to top flange of the steel beam.

   d. All wood joists shall have cross-bridging, 8'- 0" on center (max), or at center of span, if less than 16 feet in length. Cross bridging shall be 16-ga by 3/4" wide, nailable type (with two nails on each end), ribbed steel straps, with a rust-resistant finish.

   e. Fasteners devices shall be of selected type, size, style, grade, and class as required for secure installation of the work. All items shall be galvanized for exterior use. Unless shown on drawings, comply with the following:

1)	Nails and staples;	FS FF-N-105
2)	Wood screws;	FS FF-S-111
3)	Bolts and studs;	FS FF-B-575
4)	Nuts;	FS FF-N-836
5)	Washers;	FS FF-W-92
6)	Lag Bolts or Lag Screws;	FS FF-B-561
7)	Bar or Strap Anchors;	ASTM A575 carbon steel bars

2. Reinforcing material (plates), for installation of kitchen cabinets, grab bars, etc., to be a continuous 6" (min) wide, 16-ga (min) galvanized metal plate attached directly to the studs with an additional horizontal bridging between studs. Plates shall be for full length of kitchen cabinets, grab bars, etc. See drawings for details and location of reinforcement plates.

6A.08 ROOF SHEATHING, SUB-FLOORING AND UNDERLAYMENT

A. New plywood panels shall comply with US Department of Commerce Voluntary

B. Product Standard PS 1-07, PRP-133 (Construction & Industrial Plywood) and meet the performance requirements of this standard.

1. REFERENCES:

ASTM E 661-03	- Test Method for Performance of Wood and Wood-Based Floor and Roof Sheathing Under Concentrated Static and Impact Loads.
ASTM D 2555-06	- Test Methods for Establishing Clear Wood Strength Values.
ASTM D 2718-00	- Test Method for Structural Panels in Planar Shear (Rolling Shear).
ASTM D 2719-89	- Test Methods for Structural Panels in Shear Through-the-Thickness.
ASTM D 2915-03	- Standard Practice for Evaluating Allowable Properties for Grades of Structural Lumber.
ASTM D 3043-00	- Methods of Testing Structural Panels in Flexure.
ASTM D 5266-99	- Standard Practice for Estimating the Percentage of Wood Failure in Adhesive Bonded Joints
PS 2-04	- Performance Standard for Wood-Based Structural-Use Panels.

C. All plywood panels (sub-flooring, roof sheathing and underlayment) shall be factory-marked with an indelible (non-removable) trademark gradestamp of an approved certification agency (APA, TECO, etc), evidencing compliance with plywood grade and structural performance requirements.

D. Certification Agency Gradestamp must indicate:

1. Recognized Agency Trademark.
2. Performance Standard for wood-based structural-use panels.
3. Nominal Panel Thickness.
4. Panel Grade Designation (indicates the minimum veneer grade used for the panel face and back, or grade name based on panel use).
5. Performance Rated Panel Standard, indicating structural-use panel test procedure recognized by the National Evaluation Service.
6. Exposure Durability Classification: Exposure 1* (indicates panels that are bonded with exterior adhesive and are suitable for uses not permanently exposed to the weather).

E. Mill Stamp portion must indicate:

1. Span Rating indicates the maximum spacing of roof and floor supports for ordinary residential construction application.

   For example - 48/24 rating identifies panel rated for use on roof supports spaced

up to 48” o.c., or floor supports spaced up to 24” o.c.

2. Manufacturer’s Name.
3. Mill number.

* NOTE – EXPOSURE 1 PANELS ARE SUITABLE FOR USES WHERE THEY ARE NOT PERMANENTLY EXPOSED TO THE WEATHER ELEMENTS.
– TO ELIMINATE BUCKLING AND DELAMINATING OF INSTALLED PLYWOOD, CONTRACTOR SHALL PROVIDE IMMEDIATE PROTECTION FOR INSTALLED ROOF AND FLOOR SHEATHING.
– IF WATER DAMAGE OCCURS, ALL DAMAGED PANELS MUST BE REPLACED IMMEDIATELY.

F. Materials and Installation over Wood Joists:

1. Roof Sheathing;

a. Material; Panel roof, sheathing shall be, structural rated sheathing, minimum C-D or better, Exposure 1 Grade panels with exterior adhesive.
- 23/32” (3/4”) thick,
- 48/24 o.c. (Maximum Span Rating).

b. Roof sheathing shall be installed with the grain of the top ply perpendicular to the roof joists. All panels-ends must be joined over supporting framing. Suitable edge support must be provided where indicated on drawings. Spacing of 1/8” is recommended between all panels-ends and edges. Roof sheathing should be nailed with a minimum 8d ring-or screw-shank nails** 6” o.c. along supported panel edges and 8” o.c. at intermediate supports. If the end of the plywood falls short of a joist, provide additional blocking and supports.

** NOTE – 8D COMMON NAILS MAY BE SUBSTITUTED IF RING-OR SCREW-SHANK NAILS ARE NOT AVAILABLE OR OTHER CODE-APPROVED FASTENERS MAY BE USED.

c. Recommended fastening guideline with size 8d ring-or screw-shank nails** assumes application of standard uniform loads. For heavy traffic, concentrating loads, or other special conditions, see drawings or structural engineer notes for additional requirements.

2. Plywood sub-flooring;

a. Material; Plywood sub-flooring shall be, structural rated sheathing, minimum C-D or better, Exposure 1 Grade panels with exterior adhesive.
- 23/32" (3/4") thick,
- 48/24 or 24 o.c. (Maximum Span Rating).

b. Sub-flooring shall be installed with the grain of the top ply perpendicular to the floor joists. All panels-ends must be joined over supporting framing. Suitable edge support must be provided where indicated on drawings. Spacing of 1/8" is recommended between all panels-ends and edges. Sub-floor panels should be nailed with 8d ring-or screw-shank nails** 6" o.c. along supported panel edges and 8" o.c. at intermediate supports. If the end of the plywood falls short of a joist, provide additional blocking and supports.

c. Recommended fastening guideline with size 8d ring-or screw-shank nails** assumes application of standard uniform loads. For heavy traffic, concentrating loads, or other special conditions, see drawings or structural engineer notes for additional requirements.

d. After installation sub-floor edge joints shall be sanded, prior to installation of finish flooring.

3. Floor underlayment (If required):

a. Material; Plywood underlayment for kitchen VCT tile shall be tongue-and-groove (T&G), minimum C-D or better, Exposure 1 Grade panels with exterior adhesive that meet the underlayment grade requirements of PS 1.
- 19/32" (1/2" or 5/8") Thick,
- 40/20 or 20 o.c. (Maximum Span Rating).

b. Plywood underlayment shall be laid perpendicular to installed plywood sub-flooring with 1/8" spacing between all panels-ends and edges. Fasteners shall be spaced at 6" o.c. along supported panel edges and 8" o.c. at intermediate supports.

c. Fasteners;

1-b. Nails – 12 guage galvanized ring shank underlayment nails with 3/16 inch diameter head.

2-b. Staples – 18 gauge galvanized or clear coated chisel point staples with ¼ inch maximum crown.

3-b. Length – The length of the fasteners shall be long enough to penetrate at least 75 percent of the sub-floor, but not protrude trough the bottom side of the sub-floor.

Note – Do not use uncoated, cement coated or rosin coated fasteners

d. After installation, plywood underlayment shall be fully sanded for use under resilient vinyl flooring. This additional underlayment of plywood ensures that finish floor levels are maintained the same between kitchen and living room.

e. Patch all voids, gaps, chipped edges with a patching compound acceptable to the floor covering manufacturer.

f. Keep the underlayment clean and dry until the finish material is installed.

G. Materials and Installation over Steel Framing System;

1. Roof Sheathing;

a. Material; Same type of roof sheathing as for wood joists.

b. Same installation technique with 1/8” spacing between all panels ends and edges. In order to eliminate squeaks, floor vibration, bounce, and screw popping, field applied construction adhesives shall be used. Only adhesives conforming to ASTM D3498 are recommended for use with the Field-Glued Roof/Floor System. A continuous bead of glue (about ¼” diameter) shall be applied to the clean, free of dirt, mud or water framing members. Two beads of glue shall be applied on metal joist where panel butts, to assure proper gluing to each end. Contact the steel joist supplier for approved type adhesives. Apply adhesive prior to fastening of plywood sheets.

c. Fasteners shall be self-drilling, self-tapping Phillips Water Head Screws (Ply-Tek Screw) # 12-14 (D= .160”) with weather-resistant fluoropolymer seal. Screws shall be spaced 8” o.c. along supported panel edges and at intermediate supports.

2. Plywood sub-flooring;

a. Material; Same type of plywood sub-flooring as for wood joists.

b. Same installation technique with 1/8” spacing between all panels ends and edges. In order to eliminate squeaks, floor vibration, bounce, and screw popping, field applied construction adhesives shall be used. Only adhesives conforming to ASTM D3498 or are recommended for use with the Field-Glued Roof/Floor System. A continuous bead of glue (about ¼” diameter) shall be applied to the clean, free of dirt, mud or water framing members. Two beads of glue shall be applied on metal joist where panel butts, to assure proper gluing to each end. Contact the steel joist supplier for approved type adhesives. Apply adhesive prior to fastening of plywood sheets.

c. Fasteners shall be self-drilling, self-tapping Phillips Water Head Screws (Ply-Tek Screw) # 12-14 (D= .160”) with weather-resistant fluoropolymer seal. Screws shall be spaced 8” o.c. along supported panel edges and at intermediate supports.

d. After installation sub-floor joints shall be sanded, if necessary, prior to installing finish flooring.

H. Storage and Handling;

1. Store delivered to the job site panels in dry storage space to ensure clean easy-to-handle panels. Panels should never be in direct contact with the ground. Set the panels on at least three (3) full-width supports, such as lumber stringers, of sufficient depth to provide a minimum of 4” clearance between the ground and the bottom surface of the bottom panel. One of the supports shall be placed at the center of the stack, and the others 12” to 16” from each end. The stack should be covered loosely with plastic sheet(s), to allow air circulation.

2. All panels must be handled with reasonable care in order to prevent corners and edges from damage. Extra nailing and repair work to the damaged panels will not be accepted and may require that damaged panels must be replaced.

6A.09 WOOD STAIRS

A. Wood Stair Framing and Railing:

1. Wood stairs shall be designed to support a live load as per New York City Building Code Requirements.

2. Provide stair-framing members of size and arrangement shown on drawings. If not shown, comply with the following requirements:

a. Stringer shall be 2" x 12" minimum, clear white pine.

b. Risers shall be 3/4” thickness, clear white pine.

c. Treads shall be 1 1/4” thickness, clear white pine.

d. Landing, nosing and tread returns shall be clear white pine.

e. Moldings at joint between riser and underside of treads, shall be 5/8” x 3/4” cove, clear white pine.

f. Metal balustrade shall have;

1) Top and bottom channel shape bar, 1” x 1/2”
2) Balustrade shall be 1/2” x 1/2” solid steel square bare, spaced 5” on center, welded to top and bottom channel bar of balustrade.
3) Handrail shall be mechanically attached to top of baluster.

g. Handrails shall be white oak “Traditional Type”, 2 5/8" wide x 2 3/8" tall attached to the wall with malleable iron brackets and to metal balustrade.

h. Stair vinyl treads, risers and platform tiles (if required by design) shall be installed in strict manufacture's recommendation.

B. Workmanship:

a. Closed stringers (against wall) shall be accurately cut to receive treads and risers with provisions for wedges. Open stringer shall receive a notch (at least 3 1/2” of effective depth shall remain) for treads, risers and supports.

b. Risers and treads shall be tongued and grooved together.

c. Risers shall not exceed 7 1/2” and treads shall be not less than 10”.

d. Stairs shall be solidly secured in place with top bridal iron stringer support and bottom angle. Angle dimensions by design.

e. Wedges shall be used where treads and risers are housed into stringers.

f. All nails shall be concealed and finished with heads set for “putty stopping”.

6A.10 SUBMITTALS

A. Submit for approval Certification of Inspections for wood joists, wood studs, plywood sheathing and underlayment prior to installation.

B. Shop drawings for wood stairs shall be submitted to Architect/Engineer, for approval of work specified herein, including all details, sizes of members, anchors, attachments, finishes, etc.

6A.11 TEMPORARY PROTECTION

A. Temporary wood entrance doors shall be provided in all doorway openings at exterior walls. These doors shall be equipped with proper type of hinges, locks and other necessary hardware and shall be removed and/or re-hung at different location whenever required to accommodate the work schedule. Doors shall be kept in good and secure condition at all times.

B. Provide proper and safe temporary wood covering at all openings left in concrete floor, roof and floor openings, duct shafts, elevator shafts, stair wells, etc., using wood planking 2" thick (min) cleated together. Substantial temporary wood railing around all openings (stairs, floors and roofs) must be provided until such openings planked over or eliminated.

C. Significant temporary concentrated floor load, such as construction loads due to stocking of heavy building materials (plywood, bricks, cement blocks, gypsum boards, ets,.) must be avoided during construction. Stack pile load should not exceed 40 psf.

D. All temporary protection such as wood doors, protection of stairs and over and around roof and floor openings, etc., shall be maintained in good order and repair during the period of this contract, in manner satisfactory to the Architect/Engineer.

E. Temporary protection of installed rough carpentry from weather elements shall be provided, as required by the General Conditions.

6A.12 GUARANTEE

A. Guarantee all items of work furnished and installed under this Section for (1) one year, in addition to manufacturer's standard warranties. All guarantees to be from the date, when **Final Certificate of Occupancy** is issued from Department of Buildings.

END OF SECTION