SECTION 11 82 27

EXTERIOR COMPACTORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roll-off waste compactor with dumper cart and appurtenances.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories: Placement of anchor bolts and inserts into concrete.

1.03 REFERENCE STANDARDS

A. ANSI Z245.2 - American National Standard for Stationary Compactors -- Safety Requirements for Installation, Maintenance, and Operation; 2008.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); National Electrical Manufacturers Association; 2014.

C. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 2011.

D. WASTEC (SCRG) - WASTEC Listing of Rated Stationary Compactors; Waste Equipment Technology Association; 2013.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administration of Contracts and Project Procedures, for submittal procedures.

B. Product Data: Provide unit capacities, physical dimensions, utility requirements and locations, point loads.

C. Shop Drawings: Indicate machine location, rough-in and anchor placement dimensions and tolerances, clearances required .

D. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

E. Test Reports: Indicate WASTEC (SCRG) ratings accompanied with certified test results.

F. Manufacturer's Installation Instructions: Indicate special installation requirements .

G. Operation Data: Include description of system operation, adjusting and testing required.

H. Maintenance Data: Identify system maintenance requirements, servicing cycles, lubrication types required and local spare part sources.

I. **Warranty: Submit manufacturer warranty and ensure that forms have been completed in NYCHA's name and registered with manufacturer. A contract-specific warranty for the compactor/dumper/odor neutralizer, covering parts and labor, shall be provided for one year, from the date of acceptance**

J. All containers supplied must also be provided with the following items:

1. **SUBMISSIONS -shop drawings, demonstration class and instructions:**
    a. Shop drawing of control panel assembly and wiring diagram.
    b. Shop drawing of power pack assembly and hydraulic system.
    c. Comprehensive electrical wiring diagram, including internal panel and all field wiring from the source of supply to external equipment.
    d. Shop drawing of hydraulic system, showing the flow path for each phase of each complete cycle.
    e. Laminated instructions showing operation of the compactor, bilingual, in both English and Spanish.
    f. A **minimum** 1 hour demonstration class for employees, including complete instructions for proper operation and maintenance.
    g. Periodic maintenance and lubrication chart.

h. Complete set of all mechanical electrical and hydraulic drawings and schematics in accordance with all NFPA 79, ANSI/NFPA and ANSI standards.
i. Troubleshooting guide containing a list of symptoms, probable cause, and remedy for each malfunction.
j. Complete parts list, with manufacturer's item number, part number, manufacturer's description, and quantity required for each system.
k. Shop drawing of Container with the lift pocket dimension conforming to New York City Department of Sanitation and NYCHA standard dimensions, with the loading fork centered in the pocket dimensions.
l. All electrical work performed under this Section shall be done under the supervision of an individual who possesses a Master Electrician's License issued by the City of New York pursuant to title B of Chapter 30 of the Administrative Code. **The contractor shall prepare, file and submit all electrical work with NYC Department of Buildings Electrical Inspection Unit. The contractor shall obtain the necessary permits, approvals and certificates of compliance issued by the Agency and deliver to the Authority prior to submitting any request for payment for such work. An inspection of all electrical work shall be properly filed by the Contractor with the DoB Electrical Inspection Unit and Certificates of Inspection shall be supplied to the Authority when the work is completed.**
m. All material and labor required to install the electrical system as indicated on the Drawings and as specified herein, complete and ready for operation, shall be in complete accordance with and approved by the New York City DoB Electrical Inspection Unit.
n. All equipment and all wiring shall be installed in strict accordance with all laws and with the rules and regulations of the municipal and other public agencies having jurisdiction and with those of the National Board of Fire Underwriters. Any items or requirements herein, which conflict with such rules, regulations and requirements, shall be referred to the Authority for decision.
o. Any discrepancies between the specifications and Contract Drawings shall be discussed with the Authority before bidding.
p. The Contractor shall notify the Project Superintendent at least 72 hours prior to the intended commencement of work.
q. Drawings are generally diagrammatic and indicate the work to be installed. The Contractor shall harmonize the work of the several trades so that all work may be installed in the most direct and workmanlike manner and so that interference between piping; ducts, plumbing system, architectural, landscape and structural features will be avoided. In case of interference, the Landscape Architect will decide which work is to be relocated regardless of which was first installed.
r. Where Drawings and Specifications conflict with the Law or codes, the Law shall be followed, but where Drawings and Specifications are over and above the requirements of the Law, the Drawings and Specifications shall be followed.
s. Unless otherwise specified, all equipment and materials furnished and installed under this Contract shall be new and of the latest model or design.
t. All equipment requiring insulation in order to obviate danger to life or property shall be thoroughly insulated by the Contractor at his expense. Wires, conductors and other movable equipment shall be placed in such locations and in such a manner as will prevent unauthorized persons from handling or tampering with them. Ladders, guards, etc. shall not be left unattended in the work area.
u. The Contractor shall carefully investigate the structural and finish conditions affecting all his work and arrange all his work accordingly to furnish such fittings, panel boards, etc. as may be required to meet such conditions.
v. All items shall include everything necessary for a complete, legal and functioning installation.

w. Contractors are to sign the contractor's log upon arrival at the project, notify the project supervisors of the scope and location of work planned for the day, and before leaving, advise them of any condition which might adversely affect the tenants.
x. Contractor shall position and install conduit for electrical connections before the pad for the steel enclosure is poured. Furthermore, the electrical stub up must be positioned so that it is at the rear of the enclosure.

1.05 WARRANTY

A. A contract-specific warranty for the compactor/dumper/odor neutralizer, covering parts and labor, shall be provided for **one year**, from the date of acceptance.

B. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

C. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS / MATERIALS

2.01 OWNER-FURNISHED PRODUCTS

A. Discharge Containers/Sausage Rolls from Development Interior Compactor Rooms to Exterior Compactor Area.

2.02 APPLICATIONS

A. All materials supplied under this contract shall be new, of the latest model and design. In addition, all electrical components shall be UL listed and approved for use in New York City by the DoB Electrical Inspection Unit. The Contractor shall supply the quantity of Compactor/Dumper units as shown on the Drawings. Each Compactor/Dumper Unit shall include the following:
1. Roll-Off Compactor and Dumper Cart
2. Power Unit, with Low Oil Level Safety Switch
3. Odor Neutralizer
4. Steel Enclosure (for power unit and odor neutralizer)
5. Formed Steel Plate Wear Strips (sets)
6. Warranty
7. Electrical Connections

B. **ROLL-OFF COMPACTOR AND DUMPER CART**
1. The Roll-Off compactor shall have a minimum capacity of 30 cubic yards, a maximum capacity of 35 cubic yards and **shall conform to all New York City Department of Sanitation (NYCDOS) specifications, latest revision January 11, 2005**, and any New York City Housing Authority requirements listed in these specifications.
2. Supplier of Roll-Off compactor and dumper cart shall be one of the following three model numbers and manufacturers:
3. **OCTAPACK 265X-35/NY as manufactured by Wastequip Accurate, Inc.**, 1031 Hickstown Road, Erial, NJ 08081 telephone 1.800.220.2228. Local representative is Enviro-Equipment Sales, (516) 354-1212.
4. **Cram-A-Lot SC-T2-33E-NY, as manufactured by J.V. Manufacturing Inc.**, P.O. Box 229, 701 Butterfield Coach Road, Springdale, Arkansas 72765-0229, Phone: 479.751.7320, Toll Free: 1.800.678.7320, Fax: 479.872.0037, Email: sales@jv.com, Website: www.cram-a-lot-.com <http://www.cram-a-lot-.com>.
5. Attn: George Coughlin, North East Regional Sales Manager, cell: 717.451.9441, fax: 717.308.5015, e-mail: GCoughlin@jv.com
6. **Model SC4064, as manufactured by Sebright Products, Inc.**, 127 N. Water Street, Hopkins, MI 49328, telephone (616)793.7183. Local Representative is Integrated Waste Solutions, (610) 738-9088 X 101.

C. **Additional New York City Housing Authority requirements:**
1. A metal sweep shall be provided on the top of the ram, to prevent garbage from getting behind the ram mechanism.

2. Oil Spill Pan: An oil spill pan shall be provided under hydraulic disconnects to catch any spillage.
3. **Hydraulic Oil Heater: A thermostatically controlled hydraulic oil heater will be provided with the compactor as per manufacturer's instructions and specifications.**
4. **Oil Viscosity: 22 viscosity oil, for cold weather climates, shall be used.**
5. Quick Couplings: The compactor shall be equipped with quick couplings at the end of each hydraulic hose for ease of disconnection from the compactor. The Quick Couplings shall be configured so as to eliminate any error when re-attaching the hoses, such as using different-sized fittings for each hose. The compactor shall be fitted with dual ports so that the hydraulic hoses can be connected to either left or right side. A quick coupling fitting shall also be provided to mount the pressure gauge on to the pump motor.
6. HYDRAULIC BAG/CONTAINER DUMPER: An integral hydraulically- operated, electrically-powered, dumping mechanism shall be provided to facilitate the mechanical loading of pre-compacted refuse into the charging hopper of the refuse compactor. A hopper extension (3- sided) shall be provided integral with the refuse compactor to prevent spillage of the refuse during the loading operation. The lifting arms and dumping mechanism shall be integral with the refuse compactor and shall be capable of being transported with the refuse compactor when removed for emptying the refuse from the container. A dumper cart shall be provided, of the dimensions shown on the detail drawings, so that it is compatible with the hydraulic bag dumper and permit the loading of pre-compacted bags containing refuse.
7. Remote Control Station: Provide a remote control station and adequate cable wiring and piping required to permit operator to energize compactor from within sight of loading point.
8. Control Panel: Components shall be housed in a **NEMA 3R** electrical enclosure measuring approximately 9" x 5" mounted together with a motor starter and control power transformer. The control panel shall perform all the necessary control functions of the compactor hydraulic cylinder according to factory programmed operation logic. The control panel shall be configured to include a UL-listed, FCC Class/A approved, solid-state microprocessor based programmable logic control card (PLC). The following functions shall be performed by the PLC controller: Limit and pressure settings; select ram forward or ram returned machine shut-off; selection of up to 9 multiple cycles; one (1) second time delay from ram forward to ram reverse; integral system error diagnostic lights; ¾ and Full advisory lights; automatic motor shutdown if motor idles for more than 15 minutes in manual mode; and shall require no machine calibration. Controls shall be capable of allowing compactor operation in the event that the logic control fails and has to be removed for repairs; the compactor will continue to be operational in MANUAL mode. **NOTE: Contractor shall clearly label the location of the power source, with regard to building address, so the circuit can be identified and shut off before any service is performed.**
9. A key operated switch shall be provided to prevent unauthorized use of the compactor. The key switch shall be designed so that the key can only be removed in the OFF position.
10. Dumper Cart: A dumper cart shall be included with the compactor unit, of the size as shown on the detail drawing. If the Development utilizes existing portable containers, for either interior or exterior compactors, the lifting arms of the compactor(s) supplied under this contract must be modified to accept these containers. It shall fit NYCDOS Front Loading garbage trucks (EZpack 70-30) and have a capacity of 2 cubic yards. It shall be fabricated with one side measuring 6 inches for easy loading of garbage. It shall not have any container lids. Metal component specifications are as follows; Cart side-10 gauge steel; Pocket-7gauge steel; Cart floor-7 gauge steel; Crossmember-C3 channel, 3.5#; Gusset-7 gauge steel.
11. Power unit shall be mounted a minimum of 6 inches from the floor of the power unit enclosure, to allow access to the drain plug for the hydraulic oil.
12. All equipment provided shall be standard models having been reviewed and rated by National Solid Waste Management Institute/WASTEC and proven to perform in a superior

manner. Equipment must conform to the ANSI Z245.2 Compactor Safety Standard and to all other applicable ANSI and OSHA safety standards.

13. Manufacturer shall comply with all requirements. Acceptance of compactor is subject to inspection by NYCHA Compliance Officer upon delivery to jobsite. Contractor shall provide 7-day advance notification regarding delivery date. If the supplied unit does not conform to all requirements, as determined solely by the NYCHA Compliance Officer, the compactor shall be removed by the manufacturer and replaced with a conforming unit at no extra cost to NYCHA.
14. Container shall be painted as per NYC Department of Sanitation Specifications and must have the Development name applied on both upper, vertical sides of the Container in eight (8) inch letters and also numbered, if more than one (1) Container. If there is more than one (1) Container, the numbers shall also be applied on the front of the Container as well as on the front of the corresponding steel enclosure. Development name and numbers shall be painted/stenciled/applied by the Contractor with white paint/material.

D. **POWER UNIT**

1. The power unit shall be a 10-hp. unit common with compactor with a manually operated hand valve for dumper only. The Power Unit shall have full load amperage rating of 32 amps, protected by a 60-amp switch and fused at 40 amps (FRN-40) and shall be UL approved. The power unit shall also be equipped with a hydraulic fluid level safety switch, which is capable of disabling the power unit when the oil level drops below the level at which it is safe for operation of the equipment.

E. **ODOR NEUTRALIZER - Non-chemical**

1. The odor neutralizer shall be one of the following two model numbers:
   a. Sonozaire, Model 630A- NY, Sonozaire Division, 3102 E Fifth Street, Tyler, TX 75701, tel: 800-323-2115, fax: 903-581-6178, email: sonozaire@cbi.com <mailto:sonozaire@cbi.com>, www.sonozaire.com <http://www.sonozaire.com>
   b. **Envirozone Air Purifier, Model 600**, Enviro Equipment Sales Ltd., PO Box 71, Rhineback, NY 12572, Tel: 516-354-1212, fax: 516-354-2434 as manufactured by Howe-Baker Engineers, Inc., Tyler, Texas, or approved equal.
   c. It shall use generated ozone to neutralize odors and convert oxygen in the ambient air to generate ozone by the Corona Discharge Method.
2. The odor neutralizer shall be completely self-contained in operation, requiring only electrical power and ambient air, i.e., it shall not require cooling water or additional supporting systems or apparatus to operate. It shall be equipped with glass insulator tubes, which are easily removable for periodic maintenance.
3. The odor neutralizer shall be capable of operating continuously, or turned on or off at any time without requiring any adjustments. The output control shall be capable of being pre-set or adjusted at any time or at any desired level. The odor neutralizer shall be designed to operate in a safe manner and shall incorporate safety interlocks that cause the neutralizer to shut down when the assembly cover is opened.
4. Flex hosing (bell type end) fabricated of 2-1/2" PVC material shall be used to connect the odor neutralizer to the refuse compactor container. A 2-1/2" diameter steel pipe stub, three inches long, shall be welded to an opening in the container at a height of at least 7'- 0" high. A flexible PVC hose shall come out of the top of the odor neutralizer cabinet and shall have a length sufficient to reach the refuse compactor. There shall be a PVC sleeve extending 6 inches from the enclosure to attach the flex hose.
5. The odor neutralizer shall have physical dimensions of 36" x 24" x 14" and a weight of approx. 100 lbs. The housing for the unit shall form a weather-tight enclosure as per NEMA 1 specifications, and shall be fabricated of welded aluminum construction, 1/16-inch thick minimum. All mounting and fastening hardware shall be made of non-corroding stainless steel or aluminum.
6. The odor neutralizer shall have electrical requirements of 120v, single phase, 60 Hz with a power consumption of 260 watts. The unit shall have a fault circuit with visual indicators of any faults on the control panel. The indicators shall have individual pilot lights for each of the following conditions: White = normal -indicates that the door neutralizer is energized

and the on/off switch is in the on position; Red = Service - indicates that the incoming power has tripped the reset circuit breaker. The unit shall have a Reset Circuit Breaker, a panel mounted device that enables the operator to reset and energize the odor neutralizer in the event of a power overload, and switches that prevent the odor neutralizer from operating with the switch in the "off" position. This will cause the neutralizer to stop instantaneously when the switch is placed in the "off" position.

F. **STEEL ENCLOSURE**

1. The steel enclosure shall house both the power unit and odor neutralizer unit and store the hydraulic hoses for the compactor. A licensed Electrical Contractor shall provide an unfused disconnect switch for the 208v, 3-phase power as well as the duplex outlet (115v, 3 prong, grounded female) within the steel enclosure. **The unfused disconnect switch shall be mounted to the wall of the enclosure**. The steel enclosure shall be permanently anchored to the concrete pad. Contractor shall position and install conduit for electrical connections before the pad for the steel enclosure is poured. Furthermore, the electrical stub up must be positioned so that it is at the rear of the enclosure. The steel enclosure shall meet the following requirements:
2. The steel enclosure shall be as shown on the drawings. Sides and door shall be fabricated of 11-gauge steel formed at the corners, or as an alternate method, the steel angle and continuous weld method. If the steel angle method is used, angles shall be 2” x 2” x ¼” angle framework and **all welds shall be continuous inside and out.** There shall be an upper and lower compartment in each unit. The enclosure shall have hinged doors on the front and the rear. All connections for hoses, etc., shall be as per the following requirements, with two of each of the specified items supplied for each enclosure.
3. The front and the back of the enclosure shall be configured with two hinged doors, one above the other, sized to fit and enclose each of the two compartments. Each door shall be outfitted with a hasp suitable for a padlock enabling the doors to be locked. The contractor shall supply a heavy-duty keyed padlock. Padlock shall be American Lock Co. #700 DL or approved equal, with two and one half inch body diameter, 5-pin tumbler, cadmium plated hardened steel shackles, 7/16-inch diameter, and one-inch clearance. Locks shall be keyed alike, and furnished with two keys, non-removable in an unlocked position. A cadmium plated or electro-galvanized No. 12 steel chain, 9 inches long, shall be used to fasten the body of the lock to the enclosure. These doors shall have a louvered air intake measuring 6' x 2" fabricated from 1" x 1" x 1/8" steel angles, each with a rain hood.
4. The upper compartment shall be fabricated with two (2) 6" x 6" openings each covered with sheet steel on both sides. Covers to be removable using hand tools. The access cover is provided to permit ventilation. A 2-1/2" diameter pipe, 6 inches long, shall be welded into 2-1/2"" diameter cut-outs on each side of the upper compartment, 12" down from the roof, for connection of the odor neutralizer exhaust hose. The roof shall have a 1" slope toward either side of the unit for water drainage.
5. The lower compartment shall have an opening (4" diameter) not less than 1'- 0" from the bottom of the enclosure. These openings may be provided on the right and left-hand sides or the rear of the enclosure but not the front. This opening is provided to allow egress of the hydraulic hoses that are connected to the refuse compactor. This opening shall have a PVC sleeve with elbow, to prevent the hydraulic hoses from being worn by the metal edge of the enclosure.
6. Hold Down Clamps: Contractor shall furnish hold down clamps for the electrical and hydraulic hoses (as required). A bracket that is suitable for stowing the hydraulic hoses when not in use shall be attached to the side of the metal enclosure nearest the compactor. This will ensure that the hydraulic disconnects are kept off the ground when not connected to the compactor.
7. Three-phase electrical supply power (208v, 3 phase, 60Hz, 40 amps) shall be run to the lower section of the enclosure via suitable electrical conduit and wiring to provide adequate power for the electro/hydraulic power unit. All wiring to be in accordance with all applicable codes. Electrical power shall be routed via fused disconnect (60AMP) switch

terminated at the motor starter panel of the electro/hydraulic power unit. The unfused disconnect switch and duplex outlet shall be located inside the lower compartment on the side of the enclosure opposite the hinge.

8. Single-phase electrical supply power 115 volt, 60 Hz, 15 AMP terminating in a 3-prong, grounded female outlet suitable for outdoor use shall be provided to the steel enclosure. Wire management opening will be provided in the steel shelf dividing the enclosure to permit routing of electrical wiring.

G. **FORMED STEEL PLATE WEAR STRIP**

1. The formed steel plate wear strips and guides shall be of sizes and materials as shown on the Contract Drawings. For new installations, the steel plate wear strips (7/16” formed steel plate) with 4" x 2" x 10”, 7.5 lb. channel (cleats to ensure purchase when concrete pad is poured) shall be embedded in the concrete pad. An 8 ft. long W 8 x 31 steel I-beam will be installed (fillet weld to wear strips, both front and rear) to absolutely limit rear movement of roll-off refuse container. Welded angles and guides are not acceptable. All four wheels of the Compactor shall rest firmly on the wear strips.

H. **ELECTRICAL CONNECTIONS**

1. **WIRE AND CABLES**

a. Furnish and install all wire and cable to conform to the latest requirements of the "Electrical Code of the City of New York", "Insulated Power Cable Engineer Association" and "Underwriters Laboratories". All wire and cable shall be copper and conform to the following:

1) All branch circuits and feeders shall be THWN copper.
2) The minimum wire size for all new branch circuits shall be as per the National Electric Codes.
3) Underground wire shall be type THWN, approved for use in conduits, designed for a wet corrosive atmosphere, and sized as indicated on Contract Drawings or in the Specifications.
4) Wherever new conductors or extensions to existing conductors are required (whether inside or outside the building), they shall be furnished and installed by the Contractor.
5) Splices in conductors shall be soldered and taped, or approved solderless connectors shall be used.
6) The work shall include the cleaning out of conduits and pull boxes, removal of all dirt, water, etc., making all splices or connections at which new conductors terminate.
7) Where wire insulation types, as specified, are not available, the Contractor shall furnish other approved types, provided the NYC Electrical Code allowances for conduit fill are not exceeded. There shall be no additional cost to the Authority for this substitution.
8) Unless otherwise specified, all wire shall be solid. All wire larger than AWG#10 shall be stranded.

I. **CONDUIT**

1. The Contractor shall furnish and install conduits as required. If sizes are not indicated or mentioned, conduits shall be sized to accommodate the required quantity and gauge wire for the specific application and as per New York City Electrical Code.

2. **Underground Conduit**

a. All conduits installed underground shall be no less than 1" nominal size. Conduits for double power unit enclosures shall be adequately sized to accept the required wire size and quantity. The work shall include all necessary excavation, foundations, drilling, back filling and restoration of disturbed areas to their original condition.
b. Conduit shall be laid in a uniform manner, properly spaced and graded without traps so that all condensation will drain into the nearest box.
c. All conduits for underground installation shall be installed in trenches not less than 24" below final grade.

d. During construction, proper support and protection shall be provided to prevent injury to conduit and all ends shall be closed to prevent water and foreign matter from entering the conduit system.
e. Conduit end shall extend above concrete foundation at least 2" but not more than 8" and be grouted.
f. All conduits for installations underground or in concrete shall be 40 MIL (0.404) standard weight, butt-welded, rigid steel, heavy wall PVC coated rigid galvanized. The conduit shall be joined with screw couplings. The joints shall be made up so that ends butt together. Conduit shall be free from blisters, cracks, or injurious defects and shall be reamed at each end. All bends are to be free from kinks and be of such curvature as to permit the drawing in of cable without injury. Conduit and fittings shall be hot- dipped galvanized with hot-dipped threads Conduit shall have standard pipe taper threads, clean-cut, straight and true. The threads shall be protected during transit and installation and shall be of sufficient length to permit the proper coupling connection. Long running threads will not be permitted on any part of the work. PVC coated conduit system is manufactured by Robroy Industries - Plasti Bond, Perma-Cote rigid steel conduit, and Ocal 2 rigid steel conduit by Occidental Coating Co. is considered acceptable. Conduit shall comply with Federal Specifications, the most current revision.

3. **Conduit for Installation on Building Exterior:**
   a. The Conduit and fittings shall be as specified in the paragraph for "PVC coated rigid galvanized conduit".
   b. Conduit shall be installed on the surface of the masonry ceilings or walls and fastened thereto with one hole, steel straps, expansion shield anchors 10-24 round head machine screws or 3/16" toggle bolts or other means approved by the Authority.
   c. Conduit shall be installed parallel or perpendicular to adjacent walls. Vertical runs shall be plumbed. All bends are to be of equal radius throughout and be free of kinks and flattening. Offsets and saddles shall not exceed 7". Conduit shall be bent to conform to the surface upon which it is fastened. Fastening supports shall not be used to spring conduit to contour of surfaces.
   d. Ninety-degree bends around external corners are not to be used. They shall be made with the use of malleable iron threaded type conduit bodies, type LB or approved equal.
4. **Conduit for Installation within Building Structure**
   a. Conduit shall be installed on the surface of the masonry ceilings or walls and fastened thereto with one hole, steel straps, expansion shield anchors 10-24 round head machine screws or 3/16" toggle bolts or other means approved by the Authority.
   b. Conduit shall be installed parallel or perpendicular to adjacent walls. Vertical runs shall be plumbed. All bends are to be of equal radius throughout and be free of kinks and flattening. Offsets and saddles shall not exceed 7". Conduit shall be bent to conform to the surface upon which it is fastened. Fastening supports shall not be used to spring conduit to contour of surfaces.
   c. Offsets shall be used where conduit enters outlet, junction boxes, or distribution panels and shall be fastened thereto with malleable iron lock nuts and bushings.
   d. Ninety-degree bends around external corners are not to be used. They shall be made with the use of malleable iron threaded type conduit bodies, type LB or approved equal.
   e. Adjustable extension boxes or collars shall be used to extend existing flush mounted junction or outlet boxes.
   f. All conduit and accessories installed inside buildings, unless otherwise noted, shall be galvanized heavy wall rigid steel or IMC in the tank rooms, pump rooms, boiler rooms, public spaces and corridors, and EMT in the remaining spaces.

J. Fuses and Grounding
   1. All fuses and grounding shall be in accordance with the New York City DoB Electrical Inspection Unit.

2. A decal shall be affixed to the power unit enclosure that tells the location of fuses and building from which power source is obtained.

2.03 COMPACTORS - INSTALLATION

A. The Contractor shall furnish and install all components necessary for the compactor(s) to be fully operational. Caution Ribbon shall be installed above the conduit, one (1) foot below finished grade. Anchors and Fasteners: Galvanized steel; where embedded in concrete, provide to concrete installer for installation.

B. Prior to the delivery of the Compactor/Dumper and its associated components, all walls, fences, curbs, gates, and locks called for in the Compactor area shall be installed and operational. This is to ensure the safety and security of the Compactor and its area.

C. The Contractor shall furnish and install all necessary wiring, conduit, etc. from the House Electrical Panel to the Exterior Compactor to ensure that the new compactor unit is operational. The Contractor shall be responsible to assure that the installations are in compliance with the City of New York Building Department Codes.

D. The supplier shall be responsible for conducting a demonstration that will educate the Development staff of the proper use of the compactor and odor neutralizer units. **The demonstration shall be a minimum of one hour in duration**, and shall enable all Development staff to practice the operation of the system. This demonstration shall be performed after the units are installed and fully operational.

E. Contractor shall ascertain the location of all electrical cables, all conduits, all utility lines, oil tanks and supply lines, so that proper precaution may be taken not to disturb or damage any subsurface improvements. In the event any are uncovered, the Contractor shall promptly notify the Authority who shall arrange to relocate the equipment. Failure to follow this procedure places upon the Contractor the responsibility of making, at his own expense, all the requisite repairs to damaged utility lines resulting from work hereunder.

F. All plantings in the way of excavations shall be removed and replaced by the Contractor. The Contractor shall notify the development superintendent one (1) week in advance of excavation work.

G. The Contractor shall provide all necessary labor and equipment to excavate trenches for underground conduits and water distribution piping. Excavation below required depth shall be refilled with sand or gravel and firmly compacted. The water distribution piping shall be installed four (4) feet below grade with a six (6) inch clean sand fill around the piping. Electrical conduit shall be installed two (2) feet below grade in the same trench.

H. Width of all trenches shall be sufficient to properly install the pipe. Trenches dug near trees shall be no closer to tree than six (6') feet away plus one (1') foot for every one (1") inch of tree caliper. Caliper measurement shall be made twelve (12") above grade.

I. The excavation shall be rough graded, after testing the new piping, to a depth matching adjacent grades. They shall be raked and left in a clean condition. Within 24 hours of back filling of each excavation, the Contractor shall remove any debris, excess earth and materials occasioned by his use of the site.

J. Where conduits are laid under the locations of walkways, driveways, hard surface areas or street improvements, backfill shall be thoroughly compacted - tamping in layers not more than 4" in thickness.

K. Sidewalks, walls, and pavement shall be restored with material equal to that of the adjacent sidewalks, walls, or pavement. This work shall be restored as soon as practicable. Should the walkway to be restored be of cement, concrete composition, or other type, made up in flag or slab fashion, the Contractor shall be required to restore said flag or slab in whole.

L. Openings in foundation walls shall be grouted and/or filled with concrete to the full depth of the wall. All openings shall be made watertight by parging on both sides of the wall with waterproof mastic. A sleeve of suitable material shall be installed, with proper sealant placed between the wall and the sleeve as well as between the conduit and the sleeve.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that anchors are correctly positioned.

3.02 INSTALLATION

A. Install unit and appurtenances in accordance with manufacturer's instructions and with standards required by authority having jurisdiction.

B. Anchor unit securely in place.

C. Touch-up minor damaged surfaces caused during installation. Replace damaged components as directed by the NYCHA representative.

D. Adjust unit mechanism to achieve specified requirements.

E. The items listed below shall be supplied, packaged labeled and delivered by the contractor to Recycling Coordinator, NYCHA Technical Services Department, 23-02 49th Avenue, LIC, NY 11101 (718) 707-5729.

1. One additional Filter and Manufacturer’s literature for each unit supplied.
2. One extra Sonozaire hose for each unit supplied.
3. One extra logic card for each unit supplied.
4. Two sets of exterior hydraulic hoses for each unit supplied.

3.03 CLOSEOUT ACTIVITIES

A. Demonstrate and instruct NYCHA on unit operation. Describe unit limitations.

END OF SECTION