

PROJECT MANUAL

Point Breeze Scattered Site Rehabs Philadelphia, PA

1159 S. Cleveland Street
1628 Manton Street
1633 S. Taylor Street
1637 S. 24th Street
1734 S. 24th Street
2325 Watkins Street

07-28-14



CICADA
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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 10 00- GENERAL REQUIREMENTS

A. Permits

1. The contractor shall secure and pay for the building permit. The contractor, and/or his subcontractors, shall secure and pay for all other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the work.
 - a. The developer may secure the necessary permits as directed by OHCD/PHDC/PRA.

B. Codes and Regulations

1. The contractor and his subcontractors to comply with all laws, ordinances, rules, regulations, and orders of any public authority having jurisdiction on the performance of the work.
2. The contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the work.

C. Taxes

1. The contractor shall pay sales, consumer, use and similar taxes for the work or portions thereof provided by the contractor which are legally enacted when bids are received or negotiations concluded.

D. Labor and Material

1. Unless otherwise provided in the Contract Documents, the contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the work, whether temporary or permanent and whether or not incorporated or to be incorporated in the work.
2. The contractor shall enforce strict discipline and good order among the contractor's employees and other persons carrying out the Contract. The contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
3. Substitutions: Product names, if and where noted, are given as a standard for type and quality.
 - a. Contractor or developer may propose substitution for any named product by submitting sufficient information (catalog cuts, technical data, performance data, samples, etc.) to prove that the proposed substitute is of equal or greater quality and will perform as well as or better than the named product to OHCD/PHDC/PRA. Substitutes are not to be installed unless approved in writing by OHCD/PHDC/PRA

E. Warranty

1. The contractor warrants that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted, that the work will be free from defects not inherent in the quality required or permitted, and that the work will conform with

the requirements of the Contract Documents.

- a. The contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

F. Shop Drawings, Product Data, and Samples

1. The contractor shall perform no portion of the work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Inspector and/or Architect. Such work shall be in accordance with approved submittals.
2. Shop Drawings showing all essential construction, finishes, materials, field dimensions, views and other details shall be provided for approval as required by the Specifications and/or drawings.
 - a. Contractor to submit four (4) copies of each material; one for OHCD/PHDC/PRA, one for the Inspector, one for the Architect, and one to be returned to the contractor.
2. Samples and Product Data to establish standards of acceptable quality shall be submitted to OHCD/PHDC/PRA.
 - a. Contractor to submit four (4) copies of each material; one for OHCD/PHDC/PRA, one for the Inspector, one for the Architect, and one to be returned to the contractor.

G. Review of Contract Documents and Field Conditions

1. The contractor to carefully study and compare the Contract Documents with each other and with information furnished by OHCD/PHDC/PRA and shall report any errors, inconsistencies, or omissions discovered to the Architect, developer, and OHCD/PHDC/PRA.
2. The contractor to take field measurements and verify field conditions and to compare such field measurements and information with the Contract Documents before commencing activities. Immediately report any errors, inconsistencies, or omissions discovered to the Architect, developer, and OHCD/PHDC/PRA.

H. Use of Site

1. The contractor to confine operations at the site to areas permitted by law, ordinances, permits, and the Contract Documents. Contractor shall not encumber the site with materials or equipment.

I. Cutting and Patching

1. The contractor is responsible for cutting, fitting or patching required to complete the work or to make its parts fit together properly.

J. Cleaning Up

1. The contractor to keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by construction operations.

- a. The contractor to provide daily clean up of the site.
2. At completion of the work the contractor to remove from and about the Project waste materials, rubbish, the contractor's tools, construction equipment, machinery, and surplus materials.

K. Indemnification

1. Upon completion of the Project, and prior to final payment, the contractor to provide a complete waiver of liens, including a waiver of liens from each subcontractor and material supplier, stating that each has received payment for all labor and materials relating to the Project and disclaiming any right to file a lien against the property.

L. Insurance

1. Certificates of Insurance, on a form acceptable to OHCD/PHDC/PRA shall be submitted, prior to the start of the work, to OHCD/PHDC/PRA.
 - a. Submit one copy to the Architect and developer.

M. Execution of the Work

1. The contractor to install and maintain dust barriers, temporary covers and temporary doors as required to maintain security, safety, weather tightness, and cleanliness.
2. The contractor to provide secure temporary supports as required and maintain same until permanent supports are fully in place.
3. At Project completion, the contractor to provide a "Clean" building and site, vacuum carpet and mop hard surface floors, wipe down walls, ceilings, and fixtures. Remove all stains and paints from glass, flooring, plastic laminate, metal, and similar finishes. The interior of the building is to be dust free, ready for the Lead Risk Assessors to perform their final assessment.

END OF SECTION

July 2014

SECTION 01 20 00 - PROJECT SUMMARY

A. Project Description

1. Project Name and Location:

Name: Point Breeze Scattered Site Rehabs
Owner: Philadelphia Redevelopment Authority
Locations: 1159 S. Cleveland Street (Market-rate unit)
1628 Manton Street (Market-rate unit)
1633 S. Taylor Street
1637 S. 24th Street
1734 S. 24th Street
2325 Watkins Street
Architect: CICADA Architecture/Planning, Inc.

2. Project Summary: The project consists of the complete renovation of (6) two-story single-family homes in the Point Breeze neighborhood of Philadelphia.
3. Projected Date of Occupancy: Spring 2015
4. Scope of Work: Unless otherwise specifically noted, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation, and other facilities and services necessary for the proper execution and completion of the Work.
5. Bid Submission Documents: The following documents must be provided by the General Contractor as part of the bid submission:
- a. Bid Form with completed Redevelopment Authority of Philadelphia Construction Cost Estimate form attached
 - b. Non-Collusion Affidavit
 - c. Bid Bond
 - d. Contractor's Qualification Statement
 - e. Timeline for Construction Activity Subcontracting: The GC/bidder must specify anticipated dates for advertising bids or soliciting services, selecting subcontractors, forwarding executed contracts, and submitting monthly summary reports.
 - f. Contractor's Certificate of Compliance: The GC/bidder must sign and return a certification (form attached) indicating their commitment to making good faith efforts to utilize disadvantaged and/or local low-income residents and businesses in the project.
 - g. Contractor's Workforce Needs/Manpower Utilization: The GC/Bidder must indicate the anticipated number of employment and training positions to be filled during the course of the project.
 - h. Contractor's Affirmative Action Plan for Business Utilization: The GC/Bidder must specify the anticipated number and dollar amounts of subcontracts to be let during the course of the project.
 - i. Bid Solicitation and Commitment: The GC/Bidder must list all contractors solicited for each bid opportunity and indicate the dollar amount of contracts committed, if any.
 - j. Certification of Training, Employment, and Contracting Opportunities for Business and

Lower Income Persons: The GC/bidder must sign and return the attached certification.

6. Special Requirements:
 - a. Prior or Concurrent Work by Owner or Others: None.
 - b. Existing Site Conditions and Restrictions: None.
 - c. Contractor's Use of Premises and Adjacent Facilities: Contractor shall have full access to the sites.
 - d. Owner-Furnished and Owner-Installed Items: None.

B. Contract Forms

1. Owner Contractor Agreement: AIA Document A101-1997, Stipulated Sum Edition.
2. Bid Bond: AIA Document A310-1970.
3. Non-Collusion Affidavit of Bidder: See Specification Section 00 08 00.
4. Material and Payment Bond: AIA Document 312-1984, Performance Bond and Labor and Material Payment Bond: for 100% of the contract amount.
5. General Conditions of the Contract for Construction: AIA Document A201-1997 (copy attached).
6. Waiver of Liens: See Specification Section 00 08 10.
7. Contractor's Affidavit of Release of Liens: AIA Document G706A-1994.
8. Contractor's Application and Certificate for Payment: AIA Document G702-1992.
9. Economic Opportunity Plan:
 - a. Contractor's Certification of Compliance
 - b. Contractor's Workforce Needs/Manpower Utilization
 - c. Contractor's Affirmative Action Plan for Business Utilization
 - d. Bid Solicitation and Commitment
 - e. Certification of Training, Employment, and Contracting Opportunities for Business and Lower Income Persons
10. Contractor's Request for Information: Contractor's standard form.
11. Change Order: AIA Document G701-2000.
12. Supplementary General Conditions:
 - a. Preconstruction requirements:
 - b. The Contractor shall examine the site and verify all dimensions and conditions before start of construction. Any discrepancies shall be reported immediately to the Architect.

C. Testing

1. Testing Agency: Independent testing agency engaged and paid for by Owner.

D. Coordination

1. Coordination: Coordination of site work, utilities, and building construction.
2. Schedule: Bar-chart type project schedule indicating the estimated time duration and sequence requirements for each major activity or trade identified on the PRA Construction Cost Estimate form. An updated schedule is to be submitted by the Contractor with each Application and Certificate for Payment.

E. Field Engineering

1. Underground Utilities: Verification and location of underground utilities, facilities, and equipment.

F. Project Meetings

1. Pre-Construction Conference: Attendance by Owner, Architect, Engineers, Contractor and Owner's Representative, if applicable.
2. Progress Meetings: Biweekly; attendance by Owner, Architect, Engineers, Contractor and Owner's Representative, if applicable. Contractor is responsible for tracking and reviewing the status of outstanding Requests for Information (RFI's). Architect is responsible for production and distribution of meeting minutes.

G. Submittals

1. Project Submittals: Reproducible plus three copies of shop drawings, three copies for product data and warranties, two representative units for samples. The PRA
2. will require their Energy Consultant to review and approve submittals for windows and mechanical systems before installation proceeds.
3. Record Documents: Record drawings, record specifications and maintenance manuals.
4. Substitutions and "Or Equal": Product names are given as a standard of type and quality. The Architect and Owner will approve other products that, in their opinion, are of equal quality and performance. For any proposed substitution, the Contractor shall provide sufficient catalog sheets, technical information, and/or samples to the Architect for approval. Use of substitutions is subject to such approval; substitutions shall not be installed until approval is granted.

H. Quality Control

1. Codes and Regulations: The Contractor and his subcontractors shall comply with all laws, ordinances, rules, regulations, and orders of any public authority bearing on the performance of the Work.
2. Standards: Quality of materials and workmanship shall generally be in accordance with the best standards and practices of the trades involved.
3. Any discrepancy in the Drawings or Specifications shall be brought to the attention of the Architect.

I. Temporary Facilities

1. Temporary Utility Service: All new temporary utility services including temporary heating systems

during cold weather.

2. Temporary Facilities: Temporary construction, support facilities, and security measures. One of the properties will be designated as the Contractor's field office; the Contractor is responsible for supplying drinking water, sanitary facilities, a telephone/fax line, plan table and meeting facilities.
3. Security, Safety, and Cleanliness: The Contractor shall install and maintain dust barriers, temporary covers and temporary doors as required to maintain security, safety and cleanliness. The Contractor shall provide daily cleanup of construction areas.

J. Contract Closeout

1. Waiver of Liens: Upon completion of the project, and prior to final payment, the contractor shall provide a complete release of all liens with all subcontractors and suppliers, stating that each has received payment for all labor and materials related to the project and disclaiming any right to file a lien against the property.
2. At job completion, the Contractor shall provide a "broom clean" work area and shall, in addition, remove and clean all stains and paints from glass, flooring, laminate, metal, and similar finishes.
3. Extra Materials: General Contractor is to provide each property with a minimum of one (1) gallon of each paint used and 10% of the floor area of each floor finish and base used.
4. At Substantial Completion, have the final property survey recorded by or with local governing authorities as the official "property survey".
5. At Substantial Completion, reduction of retainage from 10% to 5% will be approved provided that the Contractor submits, at a minimum, the following closing documents:
 - a. Certificate of Occupancy and/or all Permits signed off by Philadelphia L&I.
 - b. Electrical Certificate from the Underwriter.
 - c. Plumbing Certificate from L&I.
 - d. Roof Warranty/Guarantee must be provided by the General Contractor (not the roofing subcontractor).
 - e. Complete set of As-built Drawings (incorporating field changes) for all trades.
 - f. Copies of the Change Order Log, Shop Drawing/Submittal Log, all sketches and Product Data.
 - g. Final Construction Schedule.
 - h. All Engineering Reports, if applicable.
 - i. All Manufacturer's Certifications.
 - j. All Guarantees and/or Warranties.
 - k. All Testing and Balancing approvals (including Blower Door Test results).
 - l. Operation and Maintenance data/manuals.
 - m. Subcontractor's and Material Suppliers final "Release of Liens."

END OF SECTION

DIVISION 1– GENERAL REQUIREMENTS

SECTION 01 21 00- BASIS OF DESIGN

A. Product/Finish Schedule:

<p>04 MASONRY Unit Masonry Assemblies - 04 20 00</p>	<p>Brick Type: Where required, new brick is to match existing, unless drawings indicate that wall is to be covered with stucco. Submit sample(s) of brick for approval.</p> <p>Provide reinforced precast concrete lintels for window and door openings where indicated for stucco finished masonry walls.</p>
<p>04 MASONRY Cast Stone - 04 30 00</p>	<p>Provide Reinforced Cast Stone Lintels for door and window openings, where indicated for exposed brick walls. Provide cast stone sills for window openings where indicated for exposed brick walls and for stucco faced masonry walls. Submit samples for approval from Continental Cast Stone or approved equal.</p>
<p>05 METALS Decorative Metals - 05 70 00</p>	<p>Steel handrail for new painted steel railings to be Julius Blum #4428, or approved equal.</p>
<p>06 WOODS, PLASTICS & COMPOSITE Finish Carpentry – 06 20 00</p>	<p>Wood rail for railing at bottom of stairs to second floor and for wall-mounted railing to be oak railing in natural clear finish with railing profile as indicated on detail D1/A4.1</p> <p>Exterior trim to be painted fiber-cement trim or painted Azek Cellular PVC.</p>
<p>07 THERMAL & MOISTURE PROTECTION Drainage Plane – 07 28 00</p>	<p>Provide layer of Benjamin Obdyke "Home Slicker" drainage mat, vented at top and bottom, over Water Resistive Barrier (WRB) beneath all installations of fiber cement siding and trim.</p>
<p>07 THERMAL & MOISTURE PROTECTION Siding – 07 46 00</p>	<p>Fiber Cement Siding: Smooth Lap Siding, without wood grain, width 7.25" for 6" exposure.</p> <p>Fiber Cement Trim: Boards Smooth, ¾" thick by 3 ½" wide for corner boards and for trim between bottom of siding and exposed soffit.</p> <p>Soffit and Porch Ceilings: For soffits of overhanging bays and for porch ceiling provided Fiber-cement, beaded porch panels</p>
<p>07 THERMAL & MOISTURE PROTECTION Modified Bituminous Roofing – 07 52 00</p>	<p>Roof Warranty: minimum 5 year installation warranty to be provided for all roofing, in addition to manufacturers' warranties.</p>

<p>07 THERMAL & MOISTURE PROTECTION</p> <p>Roofing Accessories or Plumbing</p>	<p>Provide cast iron combination downspout boot with area drain.</p>
<p>08 OPENINGS</p> <p>Doors and Frames - 08 11 00</p>	<p>Interior Door Profile: Masonite Two panel, smooth finish (wood grain texture not permitted).</p> <p>Exterior Door Profile: Fiberglass smooth finish (wood grain texture not permitted) with two panel square top, no glazing.</p>
<p>08 OPENINGS</p> <p>Storm Doors and Windows – 08 20 00</p>	<p>Combination Storm door: Self-Storing Storm Door, White finish</p>
<p>08 OPENINGS</p> <p>Windows - 08 50 00</p>	<p>Double Hung windows, or casement windows where indicated on drawings with matching brick moulding and jambs and head and extended subsill.</p> <p>Window Color: White</p>
<p>08 OPENINGS</p> <p>Security Screens and Doors – 08 56 00</p>	<p>Security Storm Door: Divided Lite security storm door, White finish.</p>
<p>08 OPENINGS</p> <p>Door Hardware - 08 71 00</p>	<p>Door Hardware: Lever Set: Passage function & Privacy lock for bathrooms and bedrooms; Satin nickel finish.</p> <p>Door Hardware: Entrance Handleset: Entrance Lock with profiled exterior handleset and interior lever set; satin nickel finish.</p> <p>Provide hinges, stops, thresholds and weatherstripping as indicated in specifications. Standard finish for hinges and stops to be satin nickel finish. Threshold to have satin nickel or satin stainless steel finish.</p>
<p>09 FINISHES</p> <p>Portland Cement Plastering - 09 24 00</p>	<p>Three-coat stucco over metal lath.</p> <p>Stucco Finish: Medium Sand Float</p> <p>Stucco Color: As selected by Owner from manufacturer's standard colors</p>
<p>09 FINISHES</p> <p>Tiling - 09 30 00</p>	<p>Kitchen Backsplash tile: White, 3"x6" subway tile, full height with accent tiles where indicated on drawings.</p> <p>Kitchen Floor Tile: 12" x12" nominal Porcelain Floor Tiles, with matching bullnose wall base tile, to be selected.</p> <p>Powder Room Floor Tile: Porcelain Floor Tiles, to be selected.</p> <p>Bathroom Tile: Porcelain Floor Tiles, with matching bullnose base tile, except for bathrooms scheduled to receive wainscot wall tile, to be selected.</p>

Bathroom Wall Tile (where indicated in interior elevations)

Wainscot Tile: White, 3"x6" subway tile, with bullnose edge tile at top, with row of Accent Glass Mosaic tiles, to be selected.

Tub Surround: White 6"x6" tiles with 3"x6" bullnose tope edge tile and with accent glass mosaic tile to be selected.

Grout: to be selected

Thresholds: Marble to be selected

Provide recessed shelf in shower where indicated in the interior elevations.

Setting Methods:

Floors: Latex Thin-set, TCA F144-14

Walls: Latex Thin-set, TCA W244-14

Shower and Bath Surrounds: Latex Thin-Set with waterproof membrane; TCA B412-14

09 FINISHES

Wood Flooring - 09 64 00

Wood Flooring: Nominal 3 1/4" Oak plank flooring, finish to be selected

09 FINISHES

Carpeting – 09 60 00

Carpet: To be selected

09 FINISHES

Painting and Coating
- 09 64 00

Interior Ceiling Paint: Flat White

Interior Trim Paint: Gloss White

Interior Wall Paint: Eggshell, color(s) to be selected

Interior Basement walls: 2 coats UGL Drylok Latex Base Masonry Waterproofer

Exterior Trim

Door: Semi-gloss, color to be selected

Cornice Trim: Semi-gloss, color to be selected

10 SPECIALTIES

Toilet and Bath Accessories –
10 28 00

Medicine Cabinet: 24"W x 30"H recessed mounted with satin nickel or satin stainless steel finish.

Alternative is 24"w x 30" h frameless recessed mounted cabinet with beveled edge mirror.

Powder room Medicine Cabinet: Recessed Cabinet to fit in 16" stud space and to be 24" high, satin nickel or satin stainless steel finish frame.

Bath Accessories: Satin nickel Finish, Provide the following as indicated on the drawings:

Towel Bars

Towel Rings

Robe Hooks

	Toilet Paper Holder
	Curved Shower Rod
	No soap dish or tooth brush holder at sink
10 SPECIALTIES	Mail Box: Locking, wall-mounted, brushed stainless steel finish
Mailboxes – 10 28 00	House Numbers: 5" cast brass, satin nickel finish
11 EQUIPMENT	Stainless Steel Finished Appliances (Market-Rate Units):
Residential Appliances – 11 31 00	Refrigerator: 18 Cu. Ft., Stainless Steel finish; Top-mount Freezer w/Ice maker; Energy Star
	Dishwasher: 24" built-in, Energy Star; stainless steel finish
	Range: 5-burner 30" gas range, self-cleaning, gas, stainless steel finish
	Microwave/Range Hood: 30" over range microwave/hood; stainless steel finish
	Silver-Mist Finish Appliances
	Refrigerator: 18 Cu. Ft.; Top-mount Freezer w/Ice maker; Energy Star, Silver Mist Finish
	Dishwasher: 24" built-in, Energy Star; Silver Mist finish
	Range: 30" freestanding, self-cleaning, gas, Silver Mist finish
	Microwave/Range Hood: 30" over range microwave/hood; Silver Mist finish
	Garbage Disposal: Insinkerator Badger 5, 1/2 HP
12 FURNISHINGS	Window Treatments: 1" Premium Vinyl horizontal blinds, to be provided/installed at all windows.
Window Treatments - 12 20 00	For Market-rate units upgrade to 2" Premium Faux Wood Blinds
12 FURNISHINGS	Kitchen & Vanity Casework: Full overlay with Shaker doors and slab drawer fronts, all-plywood construction. Finish: To be selected.
Residential Casework – 12 35 30	Kitchen & Vanity Pulls: Stainless steel bar pulls with 3" center-to-center mounting.
	Kitchen Countertops: Plastic laminate to be selected. For market-rate units upgrade to granite counters, to be selected
22 PLUMBING	Also provide downspout boot with area drain.
Plumbing and Drainage – 22 00 00	

22 PLUMBING
 Domestic Water Heaters –
 22 36 00
 Hot Water Heater: Bradford-White PDX4-40S6FBN; 40 gal.; Natural Gas, Power Direct Vent High EF Energy Saver Gas Water Heater, Energy Star Qualified, or approved equal.

22 PLUMBING
 Plumbing Fixtures - 22 40 00
 Water Closet: Toto Eco Drake EL 1.28 gpf, White.
 Bathtub: 60” Cast Iron White, white 3-piece fiberglass surround where indicated on drawings.
 Tub/Shower Trim: Delta T17430; stainless finish.
 Vanity Sink: Cultural marble vanity top with integral oval bowl.
 Vanity Faucet: Delta 520-MPU-DST; stainless finish.
 Drop-in Kitchen Sink: Moen 2200 Series G221943, 7 3/4” depth.
 Kitchen Faucet: Delta 4353-DST stainless finish
 Washer Box: Oatey Quadtro, single lever ball valve
 Laundry Sink: Florestone Model 20FM Utility Sink, 20”x24”. Provide with Chicago faucet and hole punching to accommodate faucet

23 HVAC
 Exhaust System - 23 35 00
 Exhaust fans:
 Bathrooms: Panasonic Whisper Green Lite, ENERGY STAR certified combination recessed exhaust fan with compact fluorescent light. Size to suit conditions.
 Powder Room: Panasonic Whisper Green, ENERGY STAR certified recessed exhaust fan. Size to suit conditions.

23 HVAC
 Gas Vents – 23 51 23
 Furnace: Condensing Unit, direct vent using plastic pipe in accordance with specifications
 Hot Water Heater: Power direct vent with 2" or 3" PVC

23 HVAC
 Central Heating System
 Requirements – 23 52 22
 HVAC to be air system.
 Provide supply in basement to temper space.

23 HVAC
 Furnaces – 23 54 00
 High-Efficiency, gas fired condensing furnace, ENERGY STAR certified and direct-vent with exterior fresh-air intakes.
 Thermostat: Programmable

26 ELECTRICAL
 Electrical - 26 00 00
 Recessed Light Fixture: Halo H471CAT 5” Insulated
 Ceiling Fan: Hampton Bay Windward IV 52”, Brushed nickel
 Ceiling Surface-mounted lights: AFX Capri Flush Mount CFF Series 12" diameter (2) Compact Fluorescent lamps, satin nickel finish, CFF-12-2-18W-GU- 27-SN
 Under-cabinet Light Fixture: Progress Hide-a-Lite3, P7021 (20, 22, or

23), fixture w/ built-in switch, direct wire, white finish. Coordinate length with wall cabinet layout.

Vanity Light Fixture: Progress P7114-60EB with (2) F17T8 lamps

Exterior Light Fixture at Front: Eglo Ascoli Model #90121A, Up and Down light cylinder, stainless steel finish, with (2) compact fluorescent lamps.

Exterior Light Fixture at Rear: Progress Lighting P5881-30WB, white finish, with 1 GU-24 18w lamp.

Exterior Porch Light: Progress P5616-16 satin aluminum w/ white glass globe, supply with compact fluorescent lamp

Basement Light Fixture: T8 wrap-around fluorescent

31 EARTHWORK
Termite Control – 31 31 16

Provide termite control treatment at each residence.

32 EXTERIOR
IMPROVEMENTS
Paving – 32 00 00

Provide asphalt paving repair as required by news work to make all utility connections to street.

32 EXTERIOR
IMPROVEMENTS
Landscaping – 32 92 00

All Landscaping beds in rear yards to receive sod.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 77 00- CLOSEOUT PROCEDURES

A. Summary

1. Section includes, but is not limited to, the following:
 - a. Inspection procedures.
 - b. Warranties.
 - c. Final cleaning.

B. Substantial Completion

1. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. Certificate of Substantial Completion will not be issued until all of these items are complete:
 - a. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - b. Advise OHCD/PHDC/PRA of pending insurance changeover requirements.
 - c. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - d. Obtain and submit releases permitting OHCD/PHDC/PRA unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - e. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 - f. Deliver tools, spare parts, extra materials, and similar items to location designated by OHDC/PHDC/PRA. Label with manufacturer's name and model number where applicable.
 - g. Make final changeover of permanent locks and deliver keys to ODDC/PHDC/PRA. Advise OHDC/PHDC/PRA personnel of changeover in security provisions.
 - 1) Remove all temporary locks installed by Contractor, sub-contractors, or other contractor related personnel.
 - h. Complete startup testing of systems.
 - i. Submit test/adjust/balance records.
 - j. Required submittals to regulatory agencies.
 - k. Terminate and remove temporary facilities from Project site, along with mockups, excess materials, construction tools, and similar elements.
 - l. Advise OHDC/PHDC/PRA of changeover in heat and other utilities.
 - m. Submit changeover information related to occupancy, use, operation, and maintenance.
 - n. Complete final cleaning requirements, including touchup painting.
 - o. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
2. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect or Developer and Inspector will either proceed with inspection or notify Contractor of unfulfilled requirements. OHDC/PHDC/PRA will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's

list or additional items identified by Architect or developer, that must be completed or corrected before certificate will be issued.

- a. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 1) The Architect or developer will perform one re-inspection when requested and only when assured that the Work has been substantially completed.
- b. Results of completed inspection will form the basis of requirements for Final Completion.

C. Final Completion

1. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - a. Submit a final Application for Payment according to provisions in the Contract.
 - b. Submit certified copy of Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect or developer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - c. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - d. Submit Hazardous Material final inspection report.
 - e. Instruct OHDC/PHDC/PRA personnel in operation, adjustment, and maintenance of products, equipment, and systems.
2. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect or developer and Inspector will either proceed with inspection or notify Contractor of unfulfilled requirements. OHCD/PHDC/PRA will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - a. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 1) The Architect or his consultants will perform one re-inspection when requested and only when assured that the remaining corrective Work has been completed.

D. List of Incomplete Items (Punch List)

1. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - a. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

- b. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
- c. Include the following information at the top of each page:
 - 1) Project name.
 - 2) Date.
 - 3) Name of Architect or developer.
 - 4) Name of Contractor.
 - 5) Page number.

E. Warranties

- 1. Submittal Time: Submit written warranties on request of Architect or developer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- 2. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - a. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11 - inch paper.
 - b. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - c. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- 3. Provide additional copies of each warranty to include in operation and maintenance manuals.

F. Materials

- 1. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

G. Final Cleaning

- 1. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- 2. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition acceptable for testing by hazardous material risk assessor. Comply with manufacturer's written instructions.

- a. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
- 1) Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - 2) Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - 3) Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - 4) Remove tools, construction equipment, machinery, and surplus material from Project site.
 - 5) Remove snow and ice to provide safe access to building.
 - 6) Clean exposed exterior and interior hard-surfaced finishes to a dirt/dust-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - 7) Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - 8) Sweep and mop concrete floors in unoccupied spaces.
 - 9) Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - 10) Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - 11) Remove labels that are not permanent.
 - 12) Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - 13) Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - 14) Replace parts subject to unusual operating conditions.
 - 15) Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

- 16) Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - 17) Clean ducts, blowers, and coils if units were operated without filters during construction.
 - 18) Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - 19) Leave Project clean and ready for risk assessment and occupancy.
3. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
 4. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

July 2014

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 81 20- SUSTAINABLE DESIGN REQUIREMENTS

A. Summary

1. The OHCD/PHDC/PRA has determined that all projects will follow a best practices approach of environmentally responsible design and construction. This Section outlines this approach. Attention will be given to: materials and products, energy and resource efficiency, durability, and indoor environmental quality both during construction and for future homeowners. These requirements are in addition to minimum efficiencies, methods, and other aspects specified in other divisions of this specification manual.
 - a. ENERGY STAR Certification: If the project will meet ENERGY STAR for New Homes certification, also refer to Part G of this Section.
 - b. LEED Certification: If the project is pursuing LEED for Homes Certification, also refer to Part H of this Section.

2. Section Includes:
 - a. General requirements and procedures for the following:
 - 1) Indoor Water Use.
 - 2) Heating and Cooling Distribution System.
 - 3) Space Heating and Cooling Equipment.
 - 4) Water Heating.
 - 5) Lighting.
 - 6) Appliances.
 - 7) Residential Refrigerant Management.
 - 8) Environmentally Preferable Products.
 - 9) Waste Management.
 - 10) Indoor Air Quality During Construction.

B. Definitions

1. Absorptive Materials: Materials which can absorb moisture and air-borne particulates leading to mold growth or other damage. Materials include but are not limited to: carpet, gypsum wallboard, and wood flooring, trim, and doors.
2. Environmentally Preferable Products: Products which contain no formaldehydes, contain no added urea-formaldehyde, and meet VOC content levels listed in other parts of this Section.
3. Green Guard: The Green Guard Environmental Institute certifies products and materials for low chemical emissions.
4. IAQ: Indoor Air Quality.
5. Urea-formaldehyde: Thermosetting resin or plastic made from urea and formaldehyde, heated in the presence of a mild base such as ammonia. Urea-formaldehyde may have short- or long-term health effects.
6. VOC: Volatile Organic Compound. Gases which are emitted from certain solids or liquids which may contain VOC's and may have short- or long-term health effects.

C. Administrative Requirements

1. Respond to questions and requests from the OHCD/PHDC/PRA.
2. Track the total amount of waste generated on the project and amount diverted from landfill. Report monthly waste totals and amount diverted totals to OHCD/PHDC/PRA with each Application for Payment. Separate diverted totals into categories listed in other parts of this Section.
3. Maintain minimum IAQ standards during construction as required by other Articles of this Section.
4. Provide Manual J calculations in accordance with most current version of the ACCA Manual J Residential Load Calculation Manual prior to purchase and/or installation of new heating or cooling equipment, unless written authorization is received from OHCD/PHDC/PRA to exclude the calculations.

D. Systems and Products

1. Systems and Products, General: Provide systems, materials and products meeting the following requirements.
2. Indoor Water Use: Comply with Division 224000 Plumbing Fixtures.
3. Heating and Cooling Distribution System: Comply with 230000 HVAC Air Distribution.

4. Space Heating and Cooling Equipment: Comply with Division 23 Sections specific to system or systems being installed.
5. Water Heating. Comply with Section 223600 Domestic Water Heaters.
6. Lighting. Comply with Section 260000 Electrical.
7. Appliances. Comply with Section 113100 Residential Appliances.
8. Residential Refrigerant Management. Comply with Section 238126 Split System Air Conditioners.
9. Environmentally Preferable Materials:
 - a. Formaldehyde Free: Select insulation products which contain no formaldehyde or are Green Guard certified.
 - b. No Added Urea-Formaldehyde: To the fullest extent possible, select engineered wood products which contain no added urea-formaldehydes in resins.
 - 1) If products containing urea-formaldehyde resins need to be used either due to inability to obtain product or cost issues, obtain written permission from OHCD/PHDC/PRA prior to purchase and installation. Clearly explain why material containing added urea-formaldehyde resin must be used in request to OHCD/PHDC/PRA. If permission is granted, follow requirements for handling and installing outlined in other Sections of the OHCD/PHDC/PRA Small Building Specifications.
 - c. Flooring: Select flooring products with the following attributes:
 - 1) Carpet and carpet pad complying with the Carpet & Rug Institute Green Label and Green Label Plus program unless approved in writing by OHCD/PHDC/PRA to install non-complying carpet and carpet pad.
 - d. Interior Paints & Finishes: Paints and coatings with low to no VOC's, complying with the following VOC content limits:
 - 1) Architectural paints and coatings applied to interior walls and ceilings must not exceed the VOC content limits established in Green Seal Standard CS11, Paints, the most current addition, available at this link:
[http://www.greenseal.org/Portals/0/Documents/Standards/GS-11%20Stn20Dev/paints GS 11.pdf](http://www.greenseal.org/Portals/0/Documents/Standards/GS-11%20Stn20Dev/paints%20GS%2011.pdf)
 - 2) Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates must not exceed the VOC content limit of 250 *g/L*.

- 3) Clear wood finishes, floor coatings, stains, primers, sealers, and shellacs applied to interior elements must not exceed the current VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule #1113, Architectural Coatings, available at the following link: <http://www.agmd.gov/rules/reg/reg11/r1113.pdf>.
- e. Adhesives and Sealants: Adhesives and sealants with low to no VOC's, complying with current VOC content limits as outlined in the South Coast Air Quality Management District (SCAQMD) Rule #1168 available at the following link: <http://www.agmd.gov/rules/reg/reg11/r1168.pdf>.

E. Waste Management

1. Performance Requirements: The OHCD/PHDC/PRA has determined that projects shall divert as much non-hazardous construction and demolition waste as possible from landfills. Amount will be measured as a percentage of the total and percent totals will be measured by weight in tons.
2. Waste Management Plan: The Contractor will develop a waste management plan. This plan will be submitted to OHCD/PHDC/PRA for review prior to starting construction. The plan will identify anticipated types of waste and a plan for diverting waste from landfills, including names of organizations and facilities which will accept the diverted waste. The following waste to be diverted will be indentified at minimum, (as applicable to each project):
 - a. Recycling Waste: Recycle paper and beverage containers used by on-site workers.
 - 1) Packaging:
 - a) Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - b) Polystyrene Packaging: Separate and bag materials.
 - c) Pallets: As much as possible, require deliveries using pa/lets to remove pa/lets from Project site. For pa/lets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - d) Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
 - 2) Site-Clearing Wastes: Chip brush, branches, and trees off site.
 - 3) Concrete and Masonry: Place unusable excess/waste in designated area/container. Remove reinforcement and other metals from concrete and sort with other metals.
 - 4) Wood Materials: Place unusable excess/waste in designated area/container.
 - 5) Metals: Place unusable excess/waste in designated area/container.

- 6) Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals.
- 7) Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and place with other metals.

F. Indoor Air Quality During Construction

1. General: The OHCD/PHDC/PRA has determined that all projects will institute minimum IAQ standards during construction. Standards are as follows:
 - a. Smoking is prohibited inside buildings during construction and within 10 feet of any window and door openings.
 - b. Storage Area: The Contractor must designate a secure and clean area to store all absorptive materials and products.
 - 1) Designate and review this area with OHCD/PHDC/PRA prior to taking delivery of and starting to store absorptive materials.
 - 2) Keep the designated area dry, clean, and orderly; prevent contamination of products from moisture and construction debris/dirt. Cover products with tarps that are weighted down.
 - 3) Monitor the storage areas for contamination; correct problems and implement preventative measures.
 - c. Protection:
 - 1) Do not install dry materials until wet materials have been installed and allowed to dry to greatest extent practical.
 - 2) Immediately remove products exhibiting stains, mold, mildew, or other evidence of water or moisture damage from site.
 - 3) Protect fabricated ductwork stored on site, wrapped and protected from dust and debris. Elevate ductwork off of floor level.
 - 4) Completely seal exposed duct ends and exposed return air and supply air grilles with plastic film and tape, or other suitable material, until after final cleaning of unit.

G. Energy Star for New Homes Certification

1. General: This part of the Section applies only to projects pursuing ENERGY STAR for New Homes Certification, as directed by the OHCD/PHDC/PRA. This Part is in addition to all requirements in preceding parts of this Section.
2. References
 - a. ENERGY STAR National Program Requirements:

- 1) Information on current program requirements is available here:
www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns.

3. Administrative Requirements

- a. HERS Rater will inform the designers of ENERGY STAR requirements.
- b. HERS Rater will provide energy modeling of proposed construction to demonstrate that construction meets or exceeds ENERGY STAR for New Homes standards
- c. HERS Rater will perform inspections and tests to confirm performance in accordance with ENERGY STAR National Program Requirements.
- d. Contractor will respond to questions and requests from the OHCD/PHDC/PRA, and HERS Rater.

H. LEED for Homes Certification

1. General: This part of the Section applies only to projects pursuing LEED for Homes Certification, as directed or approved by the PHCD/OHDC/PRA. This Part is in addition to all requirements in preceding parts of this Section References
 - a. LEED for Homes Reference Guide, current edition per USGBC and GBCI.
 - b. LEED for Homes Providers: Providers do not need to be in the state where the project is located. Refer to the USGBC website for a full listing of LEED for Homes Providers: http://www.usgbc.org/DisplayPage.aspx?CMS_PageID=1_554

2. Definitions

- a. In supplement and/or addition to definitions listed in Part B of this Section, the following:
 - 1) Environmentally Preferable Products: Products which contain recycled content, and are extracted, processed and manufactured locally, i.e.: within 500 miles of the home and that generally have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, product, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.
 - 2) Green Rater: Individuals who work with the LEED for Homes Provider overseeing all verification services on a project.
 - 3) LEED for Homes Provider: Providers are responsible for working with eligible LEED for Homes projects, Green Raters, and verifying that homes are built to meet the requirements of the LEED for Homes Rating System.
 - 4) MERV: Minimum efficiency reporting value, a standard for mechanical air filters.
 - 5) USGBC: Unites States Green Building Council, a non-profit organization dedicated to promoting sustainable design and developers of the LEED for Homes Rating System.

3. Administrative Requirements

- a. In supplement and/or addition to requirements outlined in Part C of this Section:
 - 1) With approval to proceed with LEED certification by OHCD/PHDS/PRA, a qualified architect with LEED Accreditation shall be engaged.
 - 2) The developer and architect shall select a LEED for Homes Provider to monitor the project and perform inspections as required under LEED practices. A LEED for Homes Provider is required on LEED for Homes projects.
 - 3) Respond to questions and requests from the OHCD/PHDC/PRA, Architect, LEED for Homes Provider and Green Rater.
 - 4) Submit information to document compliance with LEED as directed by the Architect, LEED for Homes Provider and Green Rater.

4. Environmentally Preferable Materials

- a. Recycled Content: To the fullest extent possible, select products and materials which contain recycled content as defined in Part C of this Section. Materials containing recycled content include but are not limited to the following:
 - 1) Concrete
 - 2) Flooring products (carpet, vinyl, linoleum)
 - 3) Doors
 - 4) Roofing
 - 5) Drywall
- b. Extracted, Processed and Manufactured Locally: To the fullest extent possible, select products and materials which have raw materials which were extracted and processed within 500 miles of project site and which were manufactured within 500 miles of project site. Local materials are generally -but not limited to, the following:
 - 1) Concrete
 - 2) Flooring products (carpet, vinyl, linoleum)
 - 3) Doors
 - 4) Roofing
 - 5) Drywall

5. Waste Management

- a. In supplement to Part E of this Section, the following

- 1) Performance Requirements: Divert as much non-hazardous construction and demolition waste at minimum from landfills. Amount will be measured by weight in tons.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 26 - QUALITY STANDARDS & CONSTRUCTION PROCEDURES

- A. Quality Standards: Conform to the following standard material/product attributes and installation and workmanship requirements for all Sections within this Division.
1. All work shall conform to current applicable code standards. Contractor is responsible for having a working knowledge of all codes.
 2. An Underwriter's Inspection Certificate shall be issued at the end of the project.
 3. All materials and equipment shall bear the label of approval of the Underwriters' Laboratories.
 4. Install electric meters in accordance with PECO standards and regulations and in location as directed by PECO.
 5. Wire for circuits shall maintain the same size throughout the circuit.
 6. Aluminum conductors are not permitted except where specified in other Sections of this Division.
 7. Wiremold is not permitted.
 8. Provide GFCI receptacles in all locations specified in other Sections of this Division and where otherwise directed by OHCD/PHDC/PRA.
 9. Install approved smoke and carbon monoxide detectors in number and in locations required by Code.
- B. Construction Procedures: Conform to the following standard construction procedures. Procedures apply to all Sections within this Division.
1. Verify all existing site conditions prior to commencing work.
 2. Install receptacles at locations and heights as specified in other Sections of this Division.
 3. Install wiring as specified in other Sections of this Division to comply with air-sealing requirements. Seal all electrical boxes with caulk or mastic.

END OF DOCUMENT

DIVISION 26– ELECTRICAL

SECTION 26 00 00- ELECTRICAL

A. Summary

1. Section Includes:

- a. Service entrance.
- b. Wiring.
- c. Wiring devices.
- d. Panelboards.
- e. Lighting fixtures.
- f. Ceiling fans.
- g. Door bell system.
- h. Smoke detectors.
- i. Carbon monoxide detectors.

2. Sustainable Design: Comply with Division 01 Section “Sustainable Design Requirements.

B. References

- 1. Section 07 96 00 - Air Sealing.
- 2. Section 11 31 00 - Residential Appliances.
- 3. Section 22 36 00 - Domestic Water Heaters.
- 4. Section 23 35 00 - Exhaust Systems.
- 5. Section 23 52 00 - Central Heating System Requirements.
- 6. Section 23 52 16 - Heating Boilers.
- 7. Section 23 54 00 - Furnaces.
- 8. Section 23 81 26 - Split System Air Conditioners.

C. Submittals

- 1. Submit Underwriter’s Inspection Certificate at completion of the project.

D. Materials – General

1. Underwriter's Labels: Furnish materials and equipment bearing the label of Underwriters' Laboratories or other testing agency approved by authority having jurisdiction.

E. Wiring

1. Conductors: Copper. Wire and cable utilizing aluminum conductors shall not be used in any part of the work, except service entrance cable.
2. Wire for each circuit shall maintain the same size throughout the circuit. All sizes specified are American Wire Gauge sizes.

F. Wiring Devices

1. Receptacles: Tamper-resistant duplex grounding type equal to Hubbell RR15QALTR for circuits where two or more receptacles are connected. For circuits with only one receptacle, receptacles shall be equal to Hubbell BR20ALTR. Color: White.
2. GFCI receptacles: Tamper-resistant duplex GFCI grounding type equal to Hubbell GFTR20AL. Color: White.
3. Switches: Toggle or rocker type, Color: White.
 - a. Install switches where shown on the drawings, where specified, or as required for the work, in accordance with all applicable codes. Where more than 1 switch occurs at a given point, the switches shall be installed under a common gang plate.
 - b. Switches shall be quiet type, high capacity flush type, rated not less than 15 amps.
4. Switches and Receptacle Plates: Furnish a suitable plate for each switch, combined switches and receptacle. Metal wall plates for flush type outlets shall be White color.
5. Cable TV Receptacle: F-connector jack with double gang back box and one RG-6U plenum-rated cable to basement. Color: White.
6. Telephone Receptacle: RJ-11 jack with double gang back box and category 5E plenum-rated cable to basement. Color: White.

G. Panel Boards

1. Lighting and appliance branch circuit panelboard shall be circuit-breaker equipped, type 1, class 1.

2. Panelboard shall be rated at 120/240 volts, single phase, 3 wire bus and 2-pole main circuit breaker matching specified service rating with single pole branch circuit breakers and space for a minimum of 20 circuit breakers.
 - a. Units with Fewer than 3 Bedrooms: 150 amp service rating.
 - b. Units with 3 or More Bedrooms: 200 amp service rating.
 3. There shall be a minimum of 12 branch circuits; number of breakers shall suit circuit requirements.
 4. Single pole breakers shall be full module size. Two pole breakers shall not be installed in a single module. Multi-pole circuit breakers shall be of the common-trip type having a single operating handle.
- H. Lighting Fixtures
1. Products: Reference the Basis of Design document for specific product selections.
 2. Kitchen under 100 sq. ft.: Surface-mounted Fluorescent (2) T8 lamps.
 3. Kitchen over 100 sq. ft.: Surface-mounted Fluorescent (3) T8 lamps.
 4. Bathroom Ceiling: Surface-mounted Fluorescent (1) 28w cf.
 5. Bathroom Wall: Surface-mounted Fluorescent (1) 28w cf.
 - a. NOTE: Bathroom wall fixture may be omitted if furnished integrally with medicine cabinet.
 6. Dining Room: Surface-mounted incandescent (2) 60 A19.
 7. Hall: Surface-mounted Fluorescent (1) 13w cf
 8. Basement and Garage: Surface-mounted T8 wrap-around fluorescent.
 9. Exterior Rear: Wall-mounted fluorescent (1) 28w compact fluorescent.
 10. Exterior Front: Wall mounted fluorescent (1) 28w compact fluorescent
 11. Bedroom Ceilings: Surface-mounted Fluorescent (1) 28w cf.
 12. Other fixture and lamp types may be permitted when approved in writing by OHCD/PHDC/PRA.

I. Ceiling Fans

1. Products: Reference the Basis of Design document for specific product selections.
2. Ceiling Fan: Five blade, 52 inch diameter unless otherwise required for indicated space, three speed reversible motor, speed control by pull chain operated switch, 3/4 inch down rods for suspended mounting when required.
3. Light Kit: Manufacturer's standard compact fluorescent fixture to suit fan. Furnish appropriate lamps to suit fixture.

J. Door Bell System

1. For each residential unit the system shall consist of push-button, bell or chime, 120/24 volt transformer and 24 volt wire. The equipment shall be manufactured by one manufacturer.

K. Smoke Detectors

1. Detector: Direct-wired smoke detectors with battery back-up.

L. Carbon Monoxide Detectors

1. Detector: UL 2034 listed, direct wired.

M. Installation

1. Install electrical system in accordance with NFPA-70 National Electrical Code.
 - a. Install electrical devices in accordance with manufacturer's instructions.
2. Service Entrance: Install electrical service to each residential unit.
 - a. Single Family Residence: As specified for electrical panel service capacity.
 - b. Multifamily Residences: Sized to accommodate connected load in accordance with NFPA 70, PECO Energy and OHCD/PHDC/PRA.
 - c. Install meter box at location approved by PECO Energy and OHCD/PHDC/PRA.
3. Wiring: Wiring above basement level shall be concealed. Wiremold shall not be used.
4. Switches:

- a. Install switches where shown on the drawings, where specified, or as required for the work, in accordance with all applicable codes. Where more than one switch occurs at a given point, install switches under a common gang plate.
- b. Install single pole switch at the entrance to each room or area to control light fixture or receptacle to be used for light fixture.
- c. Connect all bathroom light fixtures to wall switch.
- d. Install 3-way switches at the top and bottom of each flight of stairs, controlling required light within stairway, and in rooms have two or more entrances.

5. Receptacle Outlets:

- a. Install receptacles at locations and frequency required by code.
 - 1) In each dwelling area, install receptacles so no point along the floor line in any wall space is more than 6 ft. from a receptacle.
 - 2) Install two or more 20-amp small appliance circuits to serve the receptacles in the kitchen and dining area.
 - 3) In the kitchen, install receptacle above each counter space wider than 12 inches. Install receptacles so no point on the wall above a counter space is more than 24 inches from a receptacle.
 - 4) Install one wall receptacle in each powder room and bathroom.
 - 5) For residential units without central air conditioning:
 - a) Install one receptacle on a 20-amp dedicated circuit under a ground floor window at a location suitable for a window air conditioner.
 - b) Install one receptacle on a 20-amp dedicated circuit under a window in each bedroom.
 - 6) Install two switched outdoor receptacles accessible at grade level: one in the front and one in the rear of the house.
 - 7) Install one receptacle on a 20 amp dedicated circuit in the basement at the laundry area.
 - 8) Install at least one receptacle, in addition to the laundry receptacle, in each basement and in each garage.
 - 9) For hallways of 10 ft. or more in length, install at least one receptacle.

- 10) In crawlspaces, if equipment is installed therein requiring servicing.
 - 11) For interior switched receptacles, install receptacle with only half of the receptacle controlled by switch.
- b. Install arc-fault circuit interrupter (AFCI) protection for all receptacles located in family rooms, living rooms, dining rooms, parlors, dens, bedrooms, closets, hallways, foyers, or similar rooms or areas.
 - c. Ground-fault circuit-interrupter protection:
 - 1) The following receptacles shall be GFCI protected:
 - a) All bathroom and powder room receptacles.
 - b) All receptacles in garages.
 - c) All receptacles installed outdoors.
 - d) All basement receptacles, including dedicated laundry circuit
 - e) All counter-height receptacles in the kitchen.
 - f) All receptacles within 6-feet of a sink.
 - g) Crawlspaces
 - d. When receptacles must be installed in party walls (plaster applied directly to masonry), shielded wiring shall be recessed in a channel cut in the masonry, secured and patch-plastered over.
 - e. Location of Outlets and Equipment: Unless otherwise indicated, outlet boxes in walls shall be located with center line at the following elevations above the finished floor line.
 - 1) Switch outlets: 48 in, maximum, to centerline.
 - 2) Convenience receptacle outlets: 18 in, minimum (to bottom outlet).
 - 3) Receptacle outlets for counter tops, refrigerator, bathrooms, laundry, and garage: 42 inches, to centerline.
6. Special Connections - The contractor shall install the following connections:

- a. Exhaust fans in kitchen and bathroom.
 - b. Heating system, including shut-off switch.
 - c. Range.
 - d. Clothes dryer.
7. Panelboards: Surface mounted so the height of the top operating handle will not exceed 78" from the floor. Clearly mark breakers in panel box as to circuits served. Mount panelboard and meter (if located inside) on squarely cut 3/4-inch plywood, properly secured to foundation walls with anchors and spacers.
8. Equip living room, dining room, and all bedrooms for ceiling light. Use metal wiring box adequately supported for subsequent replacement of original fixture with combination ceiling light and fan. Install ceiling light fixture in all rooms, unless approved in writing by OHCD/PHDC/PRA.
9. Light fixtures shall be hung in place, and secured true and straight. Install appropriate lamps in each fixture.
10. Ceiling Fans: Install at locations indicated on drawings in accordance with manufacturer's instructions.
- a. Suspend fan from ceiling with drop tube when ceiling is minimum 8 feet above
 - b. Surface mount fan when ceiling is less than 8 feet above floor.
 - c. Install light fixture with fan where indicated.
11. Door Bell System:
- a. In single-family, two family and multiple unit occupancies, install a complete and operable door bell system in accordance with manufacturer's instructions.
 - b. Locate chime on wall adjacent to main stairs of a multi-story unit, or otherwise in a location providing audible signal throughout the unit.
12. Smoke Detectors:
- a. Install smoke detectors in accordance with manufacturer's instructions and most recently adopted codes.
 - b. Install one detector on each floor of structure, including basement.
 - c. Hard wire and interconnect smoke detectors so all detectors sound when any unit is activated.
13. Carbon Monoxide Detectors:

- a. Install carbon monoxide detectors in residential units with fuel fired appliances in accordance with manufacturer's instructions and most recently adopted codes.
 - b. Install one detector in each space containing fuel fired heating equipment located near equipment.
 - c. Install one detector outside each separate sleeping area in the vicinity of bedrooms. Hard wire and interconnect carbon monoxide detectors so all detectors sound when any unit is activated.
14. Grounding: Install a 5/8" diameter x 8 ft. copper-clad steel ground rod, fully driven outdoors in soil, or through basement slab, or wall. Install supplementary ground rod at least 6-feet away from primary ground rod. Connect bonding jumper from ground rods to metal water pipe entering basement within 5-feet of entrance. Furnish bonding jumper connecting piping up and down stream of water meter with enough length to allow easy removal of water meter. Install grounding electrode conductor from panelboard to water pipe. Furnish bonding jumper from cold water inlet piping to hot water outlet piping at water heater. Use connectors approved for the purpose.
15. Testing: Check entire system for proper operation, including continuity, polarity, and grounding.
16. Insulation and air-sealing requirements:
- a. Where batt insulation is to be used, install wiring so insulation does not have to be pieced, slit or wrinkled around it. Wherever possible, wiring on studded exterior walls shall be run behind the studs. Otherwise, such wiring shall be secured along the bottom plate and run through notches in the bottom of the studs, or holes drilled not more than 1/2 inches from the bottom plate.
 - b. After rough wiring, seal all holes in electrical boxes with caulk, mastic, or fire rated spray foam.

END OF SECTION