# Topeka Housing Authority
# Self – Managed Energy Performance Contract
# Request for Proposals for Pre-Construction Services & Design Assist Construction Management Services

TABLE OF CONTENTS


1. Invitation to Bid (RFP)
2. Exhibit 1 – Draft Project Narrative (Investment Grade Audit)
3. Exhibit 2 – Section 3 Business Preference Submittal Form
4. Exhibit 3 – HUD Form 5369
5. Exhibit 4 – HUD Form 5369 –A
6. Exhibit 5 – HUD Form 5370

**Topeka Housing Authority**
**Self – Managed Energy Performance Contract**
**Request for Proposals for Pre-Construction Services & Design Assist Construction Management Services**

## Project Summary:

Topeka Housing Authority ("THA") is in the planning and development stages of a U.S. Housing and Urban Development ("HUD") approved self-managed energy performance contract ("EPC"). An EPC is a financing tool where energy and water conservation measures ("ECM") are financed and installed through future utility savings generated through reduced utility consumption. Examples of ECMs include lighting retrofits, low flow fixtures, appliances, building envelope improvements, furnaces, water heaters, boilers, central plants, and other energy and water savings improvements.

An EPC project is categorized in three distinct phases:

- Project development
- Project construction (design assist construction project)
- Measurement and verification

Currently THA is in the project development stage.

A draft project narrative which explains THA's ECP in detail can be found in *Exhibit 1 –Draft Project Narrative (Investment Grade Audit)*

In addition to THA's EPC project, THA also expects to undertake additional construction projects including capital improvement projects, new developments, and other projects/improvements as needed. THA may elected to award such projects to the successful firm of the RFP.

## Scope of Work:

### General description:

THA is seeking proposals from general contractors to provide pre-construction and construction management services for a design assist construction project to install ECMs throughout THA's portfolio of up to 744 occupied homes.

### Pre-construction Scope Services:

*The pre-construction phase is estimated to be 3 months (July 2016 through September 2016)*

The pre-construction services is a period where the selected contractor will perform the following tasks:

1. Invite subcontractors to site tours of THA properties and provide pricing for all scope items in accordance with design assist bid documents;

2. Compile subcontractor pricing and develop a bid book to provide a Guaranteed Maximum Price ("GMP") to THA in accordance with design assist bid documents;

3. Review the GMP with THA and their consultants through value engineering, pricing exercises, and scope revisions to ensure the project is within budget, meets the contract bid documents specifications, and is approved by HUD;

4. Work with THA and their consultants to finalize an approach on constructability and methodology;

5. Develop a construction schedule;

6. NOTE: There are **no design or professional engineering** services included in the scope of the pre-construction phase;

**Deliverables:**

- Provide a final GMP for the project using at least 3 competitive bids for each trade/scope item. The competitive bids shall be within a reasonable range of initial THA cost estimates unless further justification is provided to support higher or lower bids. Bid books and final GMP pricing must be transparent and all documentation including the bid book, subcontractor pricing, contingencies, allowances, and all other associated fees. The final GMP must be within budget and accepted by THA and HUD.
- Construction schedule;

**Construction Management Services:**

*Construction management services are estimated to be approximately 9 months with an estimated start date of December 2016.*

The selected contractor will oversee the design assist implementation and completion of the EPC. The selected contractor, in cooperation with THA staff and hired consultants, will be required to perform and provide all construction activities including, but not limited to, obtaining necessary building permits, the labor and resources to complete all necessary due diligence, inspections, subcontractor oversight, materials testing, permitting, safety, project supervision, and other duties necessary to successfully permit, construct, and complete the project in accordance with the bid specifications and applicable federal, state, and local codes and requirements.

The selected contractor will also be required to perform all duties necessary to complete and closeout the project. This work shall include, but not be limited to completing punch list items to the satisfaction of THA, the commissioning agent, and HUD, ensuring all contract requirements have been met and lien waivers are received, delivering appropriate operation and maintenance manuals, training materials and warranties and guarantees to the commissioning agent, THA, and HUD, and removing all construction debris, materials and equipment from the site and buildings.

**Engineering and Design:** The selected contractor or their subcontractors will be required to perform design and engineering services on certain ECMs as required by the local jurisdiction having authority and or the contract specifications.

The selected contractor and their subcontractors will be required to work in occupied units and provide; scheduling, coordination, and notifications as needed.

The selected contractor will be required to provide contract administration services including, but not limited to, the following:

- Coordination of Owner, Architect, and Contractor ("OAC") meetings
- Preparation and distribution of meeting minutes;
- Coordination of all trades, subcontractors, consultants, and other disciplines;
- Coordination and scheduling with all municipal agencies and other public and entities necessary to complete the project*;*
- Coordination with public utilities;
- Preparation of monthly project reports inclusive of timelines and budget information;
- Preparation of 3-week construction schedules;
- Creation of critical path schedule;
- Coordination of maintenance and warranty trainings with THA staff and commissioning agent;
- Perform pre walks/investigative walks into properties as needed;
- Provide adequate field supervision to inspect installed work on a daily basis;
- Issue Request for Information ("RFI"), response to Architectural Supplemental Instructions ("ASI") and provide pricing for change orders ("CO");
- Under the direction of THA and their consultants, provide all information necessary and required to secure rebates and incentives from local utilities and other agencies. Anticipated information includes but is not limited to quantities of ECMs, purchase orders, cut sheets, submittals, and pricing for ECMs;

Upon substantial completion of the project, the selected contractor will be required to provide THA with certain deliverables including, but not limited to, the following:

1. Approved Designs and drawings and schematics as needed;
2. As-built drawings;
3. Specifications in hard copy and CD electronic form;
4. Operations and maintenance manuals and any training documentation in hard copy and CD electronic form;
5. Warranty of work for a minimum of one (1) year;
6. Operational and maintenance training videos;
7. Warranties and guarantees applicable to all appliances/equipment;
8. Written certifications of the following:
    a. Building Code. The project complies with all applicable federal, state and local codes and ordinances including any waivers granted by the appropriate agency (s) including compliance with Uniform Physical Accessibility Standards;
    b. Guidelines and Standards. The project meets the level of workmanship and materials as specified in the design documents and specifications;
    c. Liens and Waivers and all Contractual Requirements. No liens nor waivers may be placed on the property and this must be attested to by the contractor;
    d. Financial Documentation. Any and all certified project accounting documents, as required by the various financial institutions associated with this project, have been provided;

## RFP, Selection, and Award Schedule:

The anticipated schedule for the RFP and selection process is as follows:

- April 18, 2016 – RFP Issued
- April 27, 2016– Pre Bid Meeting – 3:00/PM CST
  *Location: 2010 SE California Ave, Topeka, KS 66607*
- May 2nd, 2016 - Written Questions Due – 2:00 PM CST
- May 5th 2016 – Written Responses Issued
- **May 16, 2016 – Proposals Due**

## Submission:

All submissions must respond to all sections and statements should not exceed 15 single-sided pages (excluding cover page and attachments). Proposals must be delivered no later than **2:00pm (CST) on May 16th, 2016 to THA, located at 2010 SE California Ave, Topeka, KS 66607**

All Submissions must include:

- One electronic copy (CD and or USB Drive/"memory stick")
- Four hard copies

**Attachments and Exhibits:** All attachments and exhibits must be referenced in the Proposal Body. NOTE: ATTACHMENTS AND EXHIBITS ARE EXCLUDED FROM THE 15 PAGE LIMIT

**Written Questions:** Submit written questions to *dguy@tha.gov*

## Evaluation Criteria:

Offers shall be submitted and evaluated in the following five (5) sections, which are explained in more detail below:

| | |
|---|---|
| Experience | (0-20 points) |
| Capacity | (0-20 points) |
| Approach & Methodology | (0-25 points) |
| Pricing/Fee | (0-25 points) |
| Section 3 | (0-10 points) |

Experience (0-20 points)

a. Detailed description of project and services provided. Provide experience with energy and water efficiency retrofits in multi-family and single family buildings. (note energy/water conservation measure additions and number of units in what type of building);
b. Owner's name and contact information (include address and phone number);
c. Overall construction cost of project (i.e. avg. const. cost/ sq. ft.), as applicable, including initial contract value and change order, including reasons for change orders;
d. Organizational structure of service delivery under the contract;
e. Original scheduled completion date and actual completion date and reason *for variance;*

Capacity (0-20 points)

a. Provide a separate graphic organizational structure complete with working titles for each proposed individual who will be working directly on project for project duration (pre-construction and construction management);
b. Provide job descriptions and responsibilities and authority for each working title;
c. Provide anticipated staff assignments for key positions by names and resumes. Provide a staff schedule by name, position, and man hours (assuming 8 hour days) per month estimated on the project;
d. Provide current workloads of all named staff assigned to this project and schedules for completion of their current assignments.
e. Provide a description of services which are anticipated to be subcontracted for, exclusive of general conditions;
f. Describe subcontractor construction work, qualifications, and indicate how coordination of subcontracted services will be accomplished;
g. If applicable, explain the structure of any joint venture or partnership, how responsibilities will be divided, how expenses and profits will be divided. Also, show each firm's staffing role. Provide a summary listing of previous work accomplished by the joint venture (included in Experience section);
h. Identify current work/project load and explain ability to perform work with a currently contemplated Q3 2016 start date with a 6-11 month construction schedule;
i. Identify ability to self-perform any scope of work;
j. Certified financial statement of firm;
k. Indicate firms bonding capacity for the project with current and anticipated projects;

Approach & Methodology (0-25 Points)

a. Describe the methodology (project approach) that clearly and concisely identifies how your team will approach the direct construction portion of this project that includes managing scope of work across multiple properties and working in occupied units;
b. Describe the methodology (project approach) that clearly and concisely identifies how your team will approach the pre-construction services portion of this project and illustrate open-book pricing of hard subcontractor bids;
c. Describe how you will confirm on-site constructability issues that may impact the GMP during the pre-construction process;
d. Identify how your firm will work toward meeting THA's MBE/WBE goals and your recommended reporting process to THA's staff for monitoring the progress of your efforts toward meeting MBE/WBE goals;

e. A complete listing of assumptions and conditions associated with your proposal;
f. Include specific examples (1-2 page excerpts) of actual products (estimates, progress reports, schedules, open-book pricing model, constructability reviews, value engineering studies, forms, general conditions, etc.);

Price/ Fee (0-25 points)

a. Pre-construction Services Phase: Insert your fee for pre-construction services below:

| Pre Construction Fee ($) | *Insert fee here:* |
|---|---|

a. List any exclusions not accounted for in fee(s) and include any additional charges that may arise during pre-construction services;
b. Offerors are encouraged to include any and all expected staff-time commitments for scope(s) of service to further explain and justify propo-sed fees (i.e. expected hours per week, number of committed staff, working titles, etc.);

b. Construction Management Services Phase Pricing:
   a. At this time the final scope and project size/cost are not 100% defined. Complete the below table to provide your fee for varying sizes of construction projects

| **Construction Management - Project Fee Schedule** | | | |
|---|---|---|---|
| **Project Size/Construction Costs *** | **$2.0 million to $2.5 million** | **$2.5 million to $3.0 million** | **$3.0 million to $3.5 million** |
| **Overhead Fee (% of Construction Costs *)** | | | |
| **Profit Fee (% of Construction Costs *)** | | | |
| **Field Management Fee (% of Construction Costs *)** *See Note # 1- below* | | | |
| **General Conditions Fee (% of Construction Costs *)** See Note # 2- below | | | |
| **Total Project Fee (% of Construction Costs *)** | | | |
| *Construction Costs is equal to the hard costs from subcontractors | | | |

**NOTE # 1:** THA recognizes that the Field Management Fee is dependent on final project scope and approach. Please provide the Field Management Fee based on the scope and approach outlined in this RFP. Provide all expected staff-time commitments and costs to explain and justify the proposed fee. If the final scope and or project approach differs from the RFP, the Field Management Fee may be negotiated to reflect actual costs.

**NOTE # 2:** THA recognizes that the General Conditions Fee is dependent on final project scope and approach. Please provide the General Conditions Fee based on the scope and approach outlined in this RFP. Provide all expected staff-time commitments and costs to explain and justify the proposed fee. If the final scope and or project approach differs from the RFP, the General Conditions Fee may be negotiated to reflect actual costs.

b. List any exclusions in your project fee
c. If applicable, describe the different responsibilities for each firm in a joint venture partnership or sub-contractor/consultant(s) and provide how the fee will be divided among parties

c. Offerors are encouraged to include any and all expected staff-time commitments for scope(s) of service to further explain and justify proposed fees (i.e. expected hours per week, number of committed staff, working titles, etc.)

Section 3 (0-10 points)

Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u) (Section 3) requires the Topeka Housing Authority to ensure that employment and other economic and business opportunities generated by the Department of Housing and Urban Development (HUD) financial assistance, to the greatest extent feasible, are directed to public housing residents and other low-income persons, particularly recipients of government housing assistance, and business concerns that provide economic opportunities to low- and very-low income persons.

Points will be awarded to respondents that have identified Section 3 eligible employment or training options in their response. Please complete Exhibit 3 – Section 3 Business Preference Submittal Form.

**Attachment Schedule:**

- *Exhibit 1 – Draft Project Narrative* (Investment Grade Audit)
- *Exhibit 2 – Section 3 Business Preference Submittal Form*
- *Exhibit 3 – HUD Form 5369*
- *Exhibit 4 – HUD Form 5369 –A*
- *Exhibit 5 – HUD Form 5370*

# Topeka Housing Authority Phase I EPC

## Investment Grade Audit

This document is a draft investment grade energy audit of the resource efficiency opportunities at Deer Creek Village, Jackson Towers, Marshall Square, Pine Ridge Manor, Polk Plaza, Tennessee Town I, Tyler Towers, and Western Plaza, Echo Ridge, and Tennessee Town II.

Version 1.0

April 15, 2016

Group 14 ENGINEERING Inspiring better buildings.

# Table of Contents

**1 Executive Summary ..... iii**
**2 General Assumptions ..... vi**
**3 Site Descriptions ..... 1**
3.1 Pine Ridge Manor ..... 1
3.2 Marshall Square ..... 2
3.3 Polk Plaza ..... 3
3.4 Tennessee Town I ..... 4
3.5 Deer Creek Village ..... 5
3.6 Western Plaza ..... 6
3.7 Tyler Towers ..... 7
3.8 Jackson Towers ..... 7
3.9 Tennessee Town II ..... 8
3.10 Echo Ridge ..... 9
**4 Summary of Measure Evaluated ..... 11**
**5 Energy and Water Conservation Measures ..... 13**
5.1 Water ..... 13
5.2 Lighting ..... 15
5.3 Envelope ..... 22
5.4 Mechanical ..... 25
5.5 Renewable Energy ..... 39

# 1 Executive Summary

Group14 Engineering has conducted an investment grade energy audit, identifying several energy and water conservation measures (ECMs) for inclusion in Phase I of an Energy Performance Contract. The assessment included 744 public housing units managed by the Topeka Housing Authority (THA). Building types include 3 high rises, 5 large row home type project developments, and 4 sites with multiple duplex homes. Group14 worked closely with THA to ensure that pressing capital needs with an efficiency component were included in the recommended bundle of ECMs.

Opportunities for improved water and energy efficiency performance were found in all facilities. ECMs include:

- Central plant control installation and optimization
- Furnace upgrades
- Domestic hot water heater upgrades
- Bathroom heating element timers
- In-unit, common area, and exterior lighting upgrades, including new fixtures, lamp/ballast replacement, and controls
- Low flow aerators (kitchen and bathroom) and showerheads
- Building envelope improvements
- Solar Photovoltaics

The report is organized by ECM category: Mechanical, Appliance, Lighting, Envelope, Water and Renewable system upgrades. Savings are reported by HUD Project Number. Because all Phase 1 work is being implemented through a GC/CM model, some specific design elements have not yet been finalized. This narrative documents existing conditions, performance requirements for the proposed ECMs, equipment counts and preliminary savings and cost estimates. In the investment grade audit to follow this effort, savings calculations, refined cost estimate, and bid specifications will be provided for each measure.

*It should be noted that all existing condition descriptions are provided for audit purposes only. Contractors are required to verify all on-site conditions on which their bids are based.*

Group14 would like to thank Topeka Housing Authority staff and residents for sharing their time and deep knowledge of the building portfolio. Because of stakeholder input, the proposed ECMs should do more than reduce utility costs and address THA capital needs. Significant operations and maintenance savings should be realized. Procurement processes will now support efficiency goals. Most importantly, the Phase I project will result in real improvements in resident thermal comfort, dwelling unit light levels, and indoor air quality.

| Tag Name | Description | Spec/Narrative Location |
|---|---|---|
| **AHU1** | Install New Space Heating Boiler Plant with Setpoint Enable and OA Reset Controls | |
| **B1** | Install New Space Heating Boiler Plant with Setpoint Enable and OA Reset Controls | |
| **CH1** | Upgrade central plant controls to optimize heating plant and chiller plant operation. | |
| **CHWP** | New chilled water pumps with variable frequency drives | |
| **F1** | 94%+ AFUE condensing 2-stage furnaces | |
| **HWP1** | New space heating pumps with variable frequency drives | |
| **HP** | 9.5 HSPF heat pumps | |
| **I1** | Weather strip windows and exterior doors, and seal all penetrations | |
| **I2** | Seal all penetrations | |
| **In1** | Unit attic insulation level increased to R-38 and air seal attic penetrations | |
| **L1** | 11 W screw-in LEDs provided for hard-wired lamps | |
| **L2** | 14 W screw-in LEDs provided for spotlights | |
| **L3** | 18 W screw-in LEDs provided for bollards | |
| **P1a** | 70W LED pole light fixture heads with multi-level lighting control (single-headed) | |
| **P2b** | 102W LED pole light fixture heads with multi-level lighting control (double-headed) | |
| **PV1** | Install carport mounted photovoltaic systems | |
| **R1** | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic | |
| **R2** | 4x4' T12 magnetic ballast fixtures, retrofit with T8 electronic | |
| **R3** | 3x4' T12 magnetic ballast fixtures, retrofit with T8 electronic | |
| **R4** | 4x2' T12 magnetic ballast fixtures, retrofit with T8 electronic | |
| **R5** | 2x8' T12 magnetic ballast fixtures, retrofit with T8 electronic | |
| **R6** | 2-lamp U-bulb T12 magnetic ballast fixtures, retrofit with T8 electronic | |

| | |
|---|---|
| **ST1** | Safe-T Element temperature limiting control stovetops |
| **T1** | Dial Timers for Bath Heat Lamps |
| **Rf1** | Energy Star refrigerators |
| **X1** | LED exit signs |
| **W1** | 41W LED wallpacks with integrated photocells |
| **WF1** | Kitchen aerator replacements (1.5 gpm) |
| **WF2** | Bathroom aerator replacements (0.5 gpm) |
| **WF3** | Showerhead replacements (1.5 gpm) |

*Please refer to complete narrative and specification set for all construction requirements.*

# 2 General Assumptions

Many of the gas and water and sewer savings calculations in this audit use the weather regression of 2014/2015 utility data to quantify baseline energy consumption. This analysis develops an energy use equation that shows the relationship between the aggregate utility data associated with each HUD project number and average daily weather from the baseline period, calculated using a weighted ordinary least squares regression. The energy use equations are then "normalized" using geographically appropriate Typical Meteorological Year weather data to produce projected energy use during a typical weather year pre-Phase 1 retrofit. This typical energy use is separated in to weather dependent and independent components – gas heating, gas baseload, electric heating, electric baseload, electric cooling, domestic water use, and irrigation water use. These are the components that are used as inputs into some savings calculations. Each component value used as a calculation input is stated in the report.

Some of the energy savings calculations have been performed using energy modeling software – the eQuest 3.6 interface for DOE-2.2. It uses an hourly typical weather year and was calibrated to the weather-regressed utility data. This allows all of the different interactions between envelope and heating and cooling systems.

To ensure utility data validation, a thorough audit of Authority records was performed during the development of the utility baseline.

This type of analysis ensures that savings are based on actual consumption data, as opposed to stipulated savings calculations based on building use assumptions. It is more compatible with an Option C Measurement and Verification Protocol, the preferred approach for this project. In some few cases, baseline adjustments have been proposed to enable an Option C IPMVP approach. Supporting narratives and calculations have been provided in these cases.

When stipulated savings calculation and building use assumptions are employed in this report, such assumptions are clearly stated in the associated Savings Calculations report section.

The measure narratives and specifications that will guide implementation have been designed to support the efficiency performance projected in this audit. Additionally, they will meet or exceed the standards established by Topeka Housing Authority and applicable Authorities Having Jurisdiction. The following standards have specific relevance to one or more ECMs:

- ASHRAE 90.1
- ASHRAE 62.1 and 62.2
- Illuminating Engineers Society of North America (IESNA) Guidelines
- Environmental Protection Agency (EPA) and Energy Star regulations and standards
- The National Electrical Code (NEC)
- Codes and Standards of the local Authorities Having Jurisdiction

A note on energy savings calculations; in some cases, it is assumed that there will be degradation in energy or water savings over the term of the Phase 1 EPC. This can be due to decreases in equipment performance over time (before equipment failure), or because of detrimental interaction between ECMs and building users. In these cases, a variance factor has been applied to reduce the projected savings. This is clearly indicated in the relevant calculations presented in this report.

# 3 Site Descriptions

Below is a table summarizing the properties included in the investment grade energy audit.

| AMP | Site # | Site Name | Structure Type | Senior/ Family/ Mixed | Total | Unit Count | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | 1 | 2 | 3 | 4 | 5 |
| KS002000001 | KS02-01.0 | Pine Ridge Manor | Semi-Detached (SD) (duplex) | Family | 211 | - | 71 | 80 | 48 | 12 | - |
| KS002000001 | KS02-09.0 | Marshall Square | Row/Townhouse (RW) | Family | 26 | - | 24 | 2 | - | - | - |
| KS002000002 | KS02-03.0 | Polk Plaza | Elevator Structure (ES) | Mixed | 109 | 65 | 35 | 9 | - | - | - |
| KS002000002 | KS02-08.0 | Tennessee Town I | Row/Townhouse (RW) | Mixed | 25 | - | 25 | - | - | - | - |
| KS002000003 | KS02-04.1 | Deer Creek Village | Row/Townhouse (RW) | Family | 92 | - | 10 | 44 | 34 | 2 | 2 |
| KS002000003 | KS02-04.2 | Western Plaza | Row/Townhouse (RW) | Family | 22 | - | - | 12 | 8 | 1 | 1 |
| KS002000004 | KS02-04.0 | Tyler Towers | Elevator Structure (ES) | Senior | 75 | - | 75 | - | - | - | - |
| KS002000005 | KS02-02.0 | Jackson Towers | Elevator Structure (ES) | Mixed | 102 | - | 94 | 8 | - | - | - |
| KS002000007 | KS02-07.0 | Tennessee Town II | Row/Townhouse (RW) | Mixed | 16 | - | 16 | - | - | - | - |
| KS002000008 | KS02-10.0 | Echo Ridge | Semi-Detached (SD) (duplex) | Family | 66 | - | 16 | 38 | 12 | - | - |
| | | | | **TOTAL** | 744 | 65 | 366 | 193 | 102 | 15 | 3 |

## 3.1 Pine Ridge Manor

Pine Ridge Manor is a 211 unit public housing family site built in 1962. This site consists of duplex and single family, detached homes, and has (71) one bedroom, (80) 2 bedroom, (48) 3 bedroom units and (12) 4 bedroom units.

### 3.1.1 Lighting Systems

The lighting in a typical unit at Pine Ridge Manor consists of primarily incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens.

Each unit has (2) wall mounted porch lights with either incandescent or compact fluorescent bulbs. Aside from porch lights, exterior lighting is primarily provided through utility owned street lights. There are also (10) metal halide wallpacks on the community and aquaponics building.

The only common area lighting is in the community and aquaponics building. Lighting is primarily linear fluorescent (mostly T8 and T5 electronically ballasted fixtures, with a few magnetically ballasted T12 fixtures) and ceiling mounted screw in incandescent.

### 3.1.2 Building Envelope

Pine Ridge Manor is a family site that is comprised of single story duplex and detached homes. Most homes have double pane windows with vinyl frames, and pitched, shingled roofs. The buildings are wood frame construction with minimal batt insulation.

### 3.1.3 Building HVAC

The units at Pine Ridge Manor are each heated and cooled by an atmospheric, natural gas furnace with a remote condensing unit. Most units were Carrier furnaces, with a heating output range of 46,000 – 69,000 BTUH and predominately 1.5 ton condensing units (R-22 refrigerant). Domestic hot water (DHW) is provided by an atmospheric natural gas 40 gallon packaged boiler and tank. Observed manufacturers included Reliance, American Water Heater, Premium Plus, and others.

### 3.1.4 Utility Service

Pine Ridge Manor purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The residents pay their own electricity and gas bills, and thus use the residential rates.

Pine Ridge Manor purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.2 Marshall Square

Marshall Square is a 26 unit public housing family site built in 1955, but remodeled in 2006. This site consists of row type and single family, detached homes with (24) one bedroom and (2) 2 bedroom units.

### 3.2.1 Lighting Systems

The lighting in a typical unit at Marshall Square consists of incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens.

Each unit has (2) wall mounted porch lights with either incandescent or compact fluorescent bulbs. Aside from porch lights, exterior lighting is primarily provided through flood lights.

The only common area lighting is in the garage and laundry rooms. Lighting is linear fluorescent (T8 electronically ballasted fixtures and magnetically ballasted T12 fixtures) in the laundry rooms and ceiling mounted screw in CFLs in the garage.

### 3.2.2 Building Envelope

Marshall Square is a family site that is comprised of row-type and detached homes. All units have double pane windows with vinyl frames, and pitched, shingled roofs. The buildings are wood frame construction with some batt insulation.

### 3.2.3 Building HVAC

The units at Marshall are each heated and cooled by a Carrier electric resistance furnace with a remote condensing unit (R-22 refrigerant). The 1 bedroom units are served by (2) 30 kW, 120 gallon electric Domestic hot water (DHW) heaters. The 2 bedroom units have 50 gallon, 4,500 watt individual in-unit electric DHW heaters.

### 3.2.4 Utility Service

Marshall Square is an all-electric site that purchases electricity from Westar Energy. The residents pay their own electricity bills, and thus use the residential rates.

Marshall Square purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.3 Polk Plaza

Polk Plaza is a 109 unit public housing family site built in 1969. This site consists of a 100 unit high rise and 9 row type cottages. The site has (65) studios, (35) 1 bedrooms, and (9) 2 bedroom units.

### 3.3.1 Lighting Systems

The lighting in a typical unit at Polk Plaza consists of incandescent and compact fluorescent ceiling and wall mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens. The first floor units also have linear fluorescent fixtures (primarily T8, electronically ballasted).

Exterior lighting is primarily provided (2) 400W MH pole lights, (19) 250W MH pole lights, and 3 bollards.

Common area lighting is primarily 4’ T8 electronically ballasted linear fluorescent fixtures (224) with a scattering of magnetic ballasted T12 and incandescent fixtures.

### 3.3.2 Building Envelope

The Polk Plaza high rise is comprised of double pane windows with aluminum framing. The building is CMU, concrete and steel construction with a flat EPDM roof. The cottages are comprise of brick/wood framed walls, double pane windows with aluminum frames and a sloped roof with asphalt shingles.

### 3.3.3 Building HVAC

The units and common areas at the Polk Plaza high rise are each heated by hydronic baseboard, with the exception of the 1st floor. The baseboard is controlled by 2 way thermostatic zone valves connected to analog non-programmable thermostats. The baseboard is served by 2 Weil-McLain power vent boilers, 2,843 MBH output each. The heating plant is manually enabled from October 15th through April 15th each year. Two (5) hp constant volume pumps circulate hot water for space heating.

Air conditioning is provided by authority owned window units in each apartment. Two window AC units per floor provide cooling to the corridors.

One power draft domestic hot water boiler provides hot water to one large storage tank. While the name plate was illegible, the authority reports that this boiler was installed in 2002.

One Carrier multi-zone hot deck cold deck air handling unit provides heating and cooling to the first floor, including (3) 1st floor units. This unit had significant water leaks. The AHU appears to be the only piece of equipment under DDC control. The building pressure is controlled by a large barometric release damper on the first floor.

The building exhaust is controlled by a series of large exhaust fans on the roof that feed a series of chases serving each apartment. These exhaust fans run continuously and are in various states of condition from good to pour.

The 9 cottages are heated and cooled with atmospheric natural gas furnaces and a remote condensing unit on a non-programmable thermostat. 40 gallon atmospheric natural gas packaged boilers provide DHW.

### 3.3.4 Utility Service

Polk Plaza purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The authority pays electricity and gas bills, using commercial rates.

Polk Plaza purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.4 Tennessee Town I

Tennessee Town I is a 25 unit public housing family site built in 1982. This site consists of duplex and single family, detached homes, and has (25) one bedroom units.

### 3.4.1 Lighting Systems

The lighting in a typical unit at Tennessee Town I consists of incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens. There were also circline fluorescent fixtures in the kitchens.

Each unit has (3) wall mounted porch lights with either incandescent or compact fluorescent bulbs. Aside from porch lights, exterior lighting is primarily provided through utility owned street lights and authority owned pole lamps. There are (12) 6’ 100 W incandescent pole lights and 7 solar powered LED pole lights. There are also (4) CFL wallpacks on the community building.

The only common area lighting is in the community building. Lighting is primarily linear fluorescent (mostly T8 electronically ballasted fixtures, with a few magnetically ballasted T12 fixtures) and ceiling mounted screw in incandescent and CFL fixtures.

### 3.4.2 Building Envelope

Tennessee Town I is a family site that is comprised of single story duplex and detached homes. Most homes have double pane windows with metal frames, and pitched, shingled roofs. The buildings are wood frame construction with minimal batt insulation.

### 3.4.3 Building HVAC

The units at Tennessee Town I are each heated and cooled by an atmospheric, natural gas furnace with a remote condensing unit. Most units were Carrier furnaces, with a heating output of 44,000 BTUH and predominately 1.5 - 3 ton condensing units. Domestic hot water (DHW) is provided by an atmospheric natural gas 40 gallon packaged boiler and tank. Observed manufacturers included Reliance and American Water Heater. There are electric heaters in the bathrooms, controlled by a timer.

### 3.4.4 Utility Service

Tennessee Town I purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The residents pay their own electricity and gas bills, and thus use the residential rates.

Tennessee Town I purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.5 Deer Creek Village

Deer Creek Village is a 92 unit public housing family site built in 1969. This site consists of duplex and row-type family homes with (10) one bedroom, (44) 2 bedroom, (34) 3 bedroom units (2) 4 bedroom units, and (2) 5 bedroom units.

### 3.5.1 Lighting Systems

The lighting in a typical unit at Deer Creek Village consists of primarily incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens.

Each unit has (2) wall mounted or ceiling recessed porch lights with either incandescent or compact fluorescent bulbs. Aside from porch lights, exterior lighting is primarily provided through utility owned street lights. There is also (1) metal halide wallpack on the community building.

The only common area lighting is in the community building. Lighting is primarily linear fluorescent (a mix of T8 electronically ballasted and T12 magnetically ballasted fixtures), with a few ceiling mounted screw in incandescent fixtures and LED exit lighting.

### 3.5.2 Building Envelope

Deer Creek Village is a family site that is comprised of single and two story duplex and row-type homes. Most homes have double pane windows with metal frames, and pitched, shingled roofs. The buildings are wood frame construction with minimal batt insulation.

### 3.5.3 Building HVAC

The units at Deer Creek Village are each heated and cooled by an atmospheric, natural gas furnace with a remote condensing unit. Most units were Carrier furnaces, with a heating output range of 44,000 – 69,000 BTUH and predominately 1.5 - 2 ton condensing units (R-22 refrigerant). Domestic hot water (DHW) is provided by primarily Reliance atmospheric natural gas 40 gallon packaged boiler and tank. There is also an exhaust fan in each bathroom on switched control.

### 3.5.4 Utility Service

Deer Creek Village purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The residents pay their own electricity and gas bills, and thus use the residential rates.

Deer Creek Village purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.6 Western Plaza

Western Plaza is a 22 unit public housing family site built in 1970. This site consists of walk up multi-family buildings, and has (12) 2 bedrooms, (8) 3 bedroom units, (1) 4 bedroom unit, and (1) 5 bedroom unit.

### 3.6.1 Lighting Systems

The lighting in a typical unit at Western Plaza consists of primarily incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens.

Each unit has (2) wall mounted or ceiling recessed porch lights with either incandescent or compact fluorescent bulbs. Aside from porch lights, exterior lighting is provided through utility owned street lights. There is no other Authority owned exterior or common area lighting.

### 3.6.2 Building Envelope

Western Plaza is a family site that is comprised of three story walk up multi-family buildings. Units have double pane windows with metal frames and pitched roofs. The buildings are wood frame construction with minimal batt insulation.

### 3.6.3 Building HVAC

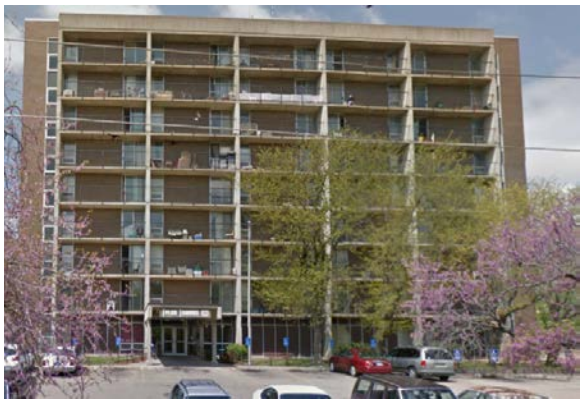
The units at Western Plaza are each heated and cooled by an atmospheric, natural gas furnace with a remote condensing unit. Most units were Carrier furnaces, with a heating output range of 44,000 – 66,000 BTUH and predominately 1.5 ton condensing units (R-22 refrigerant). Domestic hot water (DHW) is provided by an atmospheric natural gas 40 gallon packaged boiler and tank. Observed manufacturers included Reliance, Rheem, Premium Plus, and others.

### 3.6.4 Utility Service

Western Plaza purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The residents pay their own electricity and gas bills, and thus use the residential rates.

Western Plaza purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.7 Tyler Towers



Tyler Towers is a 75 unit public housing midrise built in 1972. This site consists of a single elderly elevated structure, and has (75) one bedroom units.

### 3.7.1 Lighting Systems

The lighting in a typical unit at Tyler Towers consists of primarily incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens. There is some T5 fluorescent under cabinet lighting.

Exterior lighting is primarily provided through lighting associated with Pol Plaza, some 100 W incandescent balcony lights, 150 W MH wall packs, and CFL jelly jar lights

Common area lighting is primarily 4' T8 linear fluorescent lighting with electronic ballasts. There are a few 4" T12 fluorescent fixtures with magnetic ballasts. These are located in hallways, laundries, community spaces, offices, and stairwells. There are both LED and incandescent exit signs present.

### 3.7.2 Building Envelope

Tyler Towers is an elderly site that is comprised of single midrise building. The building has double pane windows with aluminum frames, and a flat EPDM roof. The building is concrete and steel construction.

### 3.7.3 Building HVAC

The units at Tyler Towers are each heated and cooled by a 2 pipe fan coil unit. The fan coil unit is controlled by a manual "warmer/cooler" dial and 3 speed fan selector switch. The fan coil units are served by 2 power vent, natural gas Weil McLain boilers, one 1,904 MBH output and one 3,270 MBH output. There is (1) 5 hp constant volume space heating distribution pump. Chilled water is supplied by a new McQuay air cooled 160 ton chiller. There are 2 constant volume chilled water pumps (7.5 hp each). Domestic hot water is provided by 1 condensing Aerco DHW boiler, suppling a storage tank. Fan coil units in the corridors provide conditioning to the common areas.

### 3.7.4 Utility Service

Tyler Towers purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The residents pay their own electricity and gas bills, and thus use the residential rates.

Tyler Towers purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using multi-family rates.

## 3.8 Jackson Towers

Jackson Towers is a 102 unit public housing high rise built in 1969. The building has (94) one bedroom and (8) 2 bedroom units.

### 3.8.1 Lighting Systems

The lighting in a typical unit at Jackson Towers consists of primarily incandescent and compact fluorescent ceiling mounted fixtures throughout the bedrooms, hallways, living rooms and kitchens. Bathrooms may also have a linear fluorescent vanity fixture.

Common area lighting is primarily 4' T12 linear fluorescent lighting with magnetic ballasts, located in hallways, laundries, community spaces, offices, and stairwells. There are also some CFL fixtures serving the common areas.

There are 27 pole lights on site, each lamped with a 250 W mercury vapor bulb. Other exterior lighting includes 2 CFL jelly jar fixtures, (14) 100 W incandescent recessed can lights, and a 150 W MH wall pack.

### 3.8.2 Building Envelope

Jackson Towers is a 102 unit high rise with common areas, administrative offices, and laundry facilities (1 washer and dryer on floors 2-6). Windows are double pane with aluminum framing. The building is concrete and steel construction with a flat EPDM roof.

### 3.8.3 Building HVAC

The units at Jackson Towers are each heated and cooled by a 4 pipe fan coil unit. The fan coil unit is controlled by a digital thermostat that controls zone valves and fan speed. The fan coil units are served by 2 atmospheric, natural gas Ajax boilers (1,600 MBH output each). There are 2 constant volume space heating distribution pumps (10 hp each). Chilled water is supplied by a Carrier air cooled chiller, also original to the building. There are 2 constant volume chilled water pumps (25 hp each). Domestic hot water is provided by 2 condensing Lochinvar DHW boilers, suppling a storage tank. DHW boilers and circulation pumps appear to be ~10 years old. Two Carrier air handling units with chilled and hot water coils served by the central boiler and chiller plants provide fresh air to the common areas. The central HVAC system and fan coil units appear to be under direct digital control.

### 3.8.4 Utility Service

Jackson Towers purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The building is on the commercial rate structure, and utilities are authority paid.

Jackson Tower purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using the multi-family rate.

## 3.9 Tennessee Town II

Tennessee Town II is a 16 unit public housing family site built in 2010. This site consists of duplex and triplex homes, and has (16) one bedroom units.

### 3.9.1 Lighting Systems

The lighting in a typical unit at Tennessee Town II consists of primarily compact fluorescent ceiling mounted fans and fixtures throughout the bedrooms, hallways, living rooms and bathrooms. The vanities in the bathrooms occasionally have incandescents. Kitchens have T8 linear fluorescent ceiling fixtures.

### 3.9.2 Building Envelope

Tennessee Town II is a family site that is comprised of single story duplex and row-type homes. The homes have triple pane low-e windows with vinyl frames, and pitched shingled roofs with R-49 blown-in insulation. The buildings are wood frame construction with R-19 loosefill insulation.

### 3.9.3 Building HVAC

The units at Tennessee Town II are each heated and cooled by 1.5 ton Rheem heat pumps. The units are rated at 15 SEER and 9 HSPF. Domestic hot water (DHW) is provided by State electric 40 gallon DHW tanks. There is also an exhaust fan in each bathroom on switched control.

### 3.9.4 Utility Service

Tennessee Town II purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The building is on the commercial rate structure, and utilities are authority paid.

Tennessee Town II purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using the multi-family rate.

## 3.10 Echo Ridge

Echo Ridge is a 66 unit public housing family site built in 2010. This site consists of duplex and row-type family homes with (16) one bedroom, (38) 2 bedroom, and (12) 3 bedroom units.

### 3.10.1 Lighting Systems

The lighting in a typical unit at Echo Ridge consists of primarily compact fluorescent ceiling mounted fans and fixtures throughout the bedrooms, hallways, living rooms and bathrooms. Kitchens and garages have T8 linear fluorescent ceiling fixtures.

There are pole lights on site, each lamped with an 18 W CFL bulb. Other exterior lighting includes both ceiling and wall mounted CFL porch lights.

### 3.10.2 Building Envelope

Echo Ridge is a family site that is comprised of single story duplex and row-type homes. The homes have triple pane low-e windows with vinyl frames, and pitched shingled roofs with R-49 blown-in insulation. The buildings are wood frame construction with R-19 loosefill insulation.

### 3.10.3 Building HVAC

The units at Echo Ridge are each heated and cooled by FHP geothermal heat pumps. The units are rated at 15.2 EER and 3.2 COP. Domestic hot water (DHW) is provided by Bradford White electric 30 gallon DHW tanks. There is also an exhaust fan in each bathroom on switched control.

### 3.10.4 Utility Service

Echo Ridge purchases electricity from Westar Energy, and natural gas from Kansas Gas Service. The building is on the commercial rate structure, and utilities are authority paid.

Echo Ridge purchases water and sewer services from the City of Topeka. The authority pays for all of the water bills, using the multi-family rate.

# 4 Summary of Measures Evaluated

A broad range of measures was investigated during the investment grade energy audit. The measures deemed cost effective are summarized below..

| Resource Efficiency Measure List | Low Flow Aerators | | Low Flow Showerheads | | Common Area Lighting | | Exterior Lighting | | In-unit Lighting | | Heat Lamp Timers | | Safe-T Range Controls | | Central Plant Upgrades | | Infiltration Reduction | | Attic Insulation/ Air Sealing | | Upgrade In-unit Heating | | Refrigerators | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pine Ridge Manor | 211/211 | WF1/2 | 211 | WF3 | 6<br>1<br>9 | R3<br>R1<br>L1 | 10<br>1 | W1<br>L2 | 2990 | L1 | | | | | | | 58 | I1 | 211 | In1 | 211 | F1 | 10 | Rf1 |
| Marshall Square | 26/26 | WF1/2 | 26 | WF3 | 1 | R1 | 6 | L2 | 264 | L1 | | | 26 | ST1 | | | 42 | I2 | 26 | In1 | 26 | HP | | |
| Polk Plaza | 102/109 | WF1/2 | 109 | WF3 | 22<br>3<br>1<br>1<br>1 | R1<br>R4<br>R5<br>X1<br>L1 | 2<br>19<br>3 | P2a<br>P1a<br>L3 | 1141 | L1 | | | | | 1<br>10 | AHU1<br>EF1 | | | | | | | | |
| Tennessee Town I | 25/25 | WF1/2 | 25 | WF3 | 5<br>4 | R1<br>L1 | 12 | L2 | | | | | 25 | ST1 | | | 31 | I1 | | | | | | |
| Deer Creek Village | 92/96 | WF1/2 | 94 | WF3 | 16<br>17<br>5<br>18 | R1<br>R6<br>R2<br>L1 | 6 | W1 | 1564 | L1 | | | | | | | 50 | I1 | 92 | In2 | 92 | F1 | | |
| Western Plaza | 22/24 | WF1/2 | 23 | WF3 | | | | | 363 | L1 | | | | | | | 38 | I1 | | | | | | |
| Tyler Towers | 75/79 | WF1/2 | 75 | WF3 | 6<br>1<br>8 | R1<br>R5<br>X1 | 2<br>3 | W2<br>L3 | 600 | L1 | 75 | T1 | | | 16<br>2<br>1<br>8 | TF1<br>TF2<br>C1<br>EF1 | | | | | | | | |
| Jackson Towers | 102/106 | WF1/2 | 102 | WF3 | 231<br>8<br>14 | R1<br>R6<br>R4 | 27<br>1<br>14 | P2a<br>W2<br>L3 | 1114 | L1 | | | | | 1<br>1 | CH1<br>B1 | | | | | | | | |
| Tennessee Town II | 16/16 | WF1/2 | 16 | WF3 | | | | | 272 | L1 | | | 16 | ST1 | | | | | | | | | | |
| Echo Ridge | 66/66 | WF1/2 | 66 | WF3 | | | | | | | | | 66 | ST1 | | | | | | | | | | |

A breakdown of anticipated scope by percent estimated cost is presented in the pie chart below.

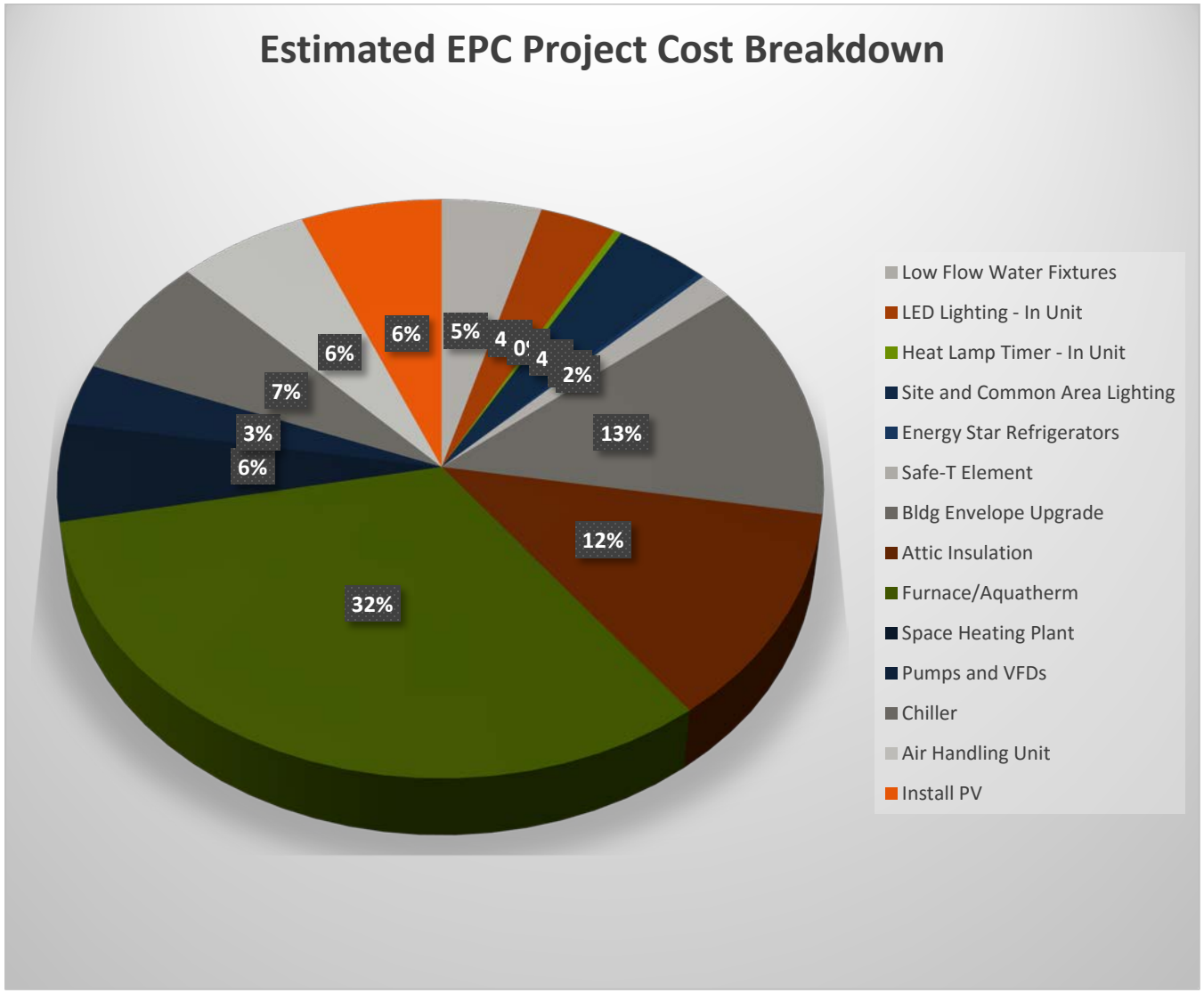



*Figure 1 - Breakdown of Anticipated Scope by % Cost Estimate*

# 5 Energy and Water Conservation Measures

## 5.1 Water

### 5.1.1 Low Flow Fixture Installation – ECM 1.1 and 1.2

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 211 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 211 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 211 | WF3 | showerhead replacements (1.5 gpm) |
| Marshall Square | KS002000001 | 26 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 26 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 26 | WF3 | showerhead replacements (1.5 gpm) |
| Polk Plaza | KS002000002 | 102 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 109 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 109 | WF3 | showerhead replacements (1.5 gpm) |
| Tennessee Town I | KS002000002 | 25 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 25 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 25 | WF3 | showerhead replacements (1.5 gpm) |
| Deer Creek Village | KS002000003 | 92 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 96 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 94 | WF3 | showerhead replacements (1.5 gpm) |
| Western Plaza | KS002000003 | 22 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 24 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 23 | WF3 | showerhead replacements (1.5 gpm) |
| Tyler Towers | KS002000004 | 75 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 79 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 75 | WF3 | showerhead replacements (1.5 gpm) |
| Jackson Towers | KS002000005 | 102 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 106 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 102 | WF3 | showerhead replacements (1.5 gpm) |
| Tennessee Town II | KS002000007 | 16 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 16 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 16 | WF3 | showerhead replacements (1.5 gpm) |
| Echo Ridge | KS002000008 | 66 | WF1 | kitchen aerator replacements (1.5 gpm) |
| | | 66 | WF2 | bathroom aerator replacements (0.5 gpm) |
| | | 66 | WF3 | showerhead replacements (1.5 gpm) |

During the course of the audit, it was observed that a large percentage of water fixtures had conventional aerators or showerheads installed. The efficiency measure is to replace all conventional bathroom aerators with

0.5 gpm aerators, all conventional kitchen aerators with 1.5 gpm aerators, and all conventional showerheads with 1.5 gpm showerheads.

The following specifications apply.

- 013300 – SUBMITTAL PROCEDURES
- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017839 – PROJECT RECORD DOCUMENTS
- 224200 – PLUMBING FIXTURES

**Improvements to Operations and Maintenance:**

The new low flow water fixtures should reduce the number of existing leaks, and associated work orders.

**Pricing and Site Specific Installation Notes to Contractor:**

Please price out at a 100% installation rate for these items, represented by the fixture count in the table at the beginning of this section. Basis of design products are available through HD Supply, the Authority's current procurement partner. Model numbers are listed in the spec. During installation, the contractor will be responsible for documenting the flow rate listed on the **existing** aerators and showerhead, using a table similar to the one provided below.

| Unit # | Existing Kitchen Flowrate | Replacement Kitchen Flowrate | Bathroom Count | Existing Bathroom Flowrate | Replacement Bathroom Flowrate | Shower Count | Existing Shower Flowrate | Replacement Shower Flowrate |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

## 5.2 Lighting

The following performance-based specification sections are related to all scopes of work included in this section (note: some information in the specifications may relate to other scopes of work and may not be germane to this scope of work). The Lighting specification section includes detailed notes on fixture and control technology types, as well as basis of design products.

- 013300 – SUBMITTAL PROCEDURES
- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017839 – PROJECT RECORD DOCUMENTS
- 017900 – DEMONSTRATION AND TRAINING
- 019113 – GENERAL COMMISSIONING REQUIREMENTS
- 265100 – ELECTRICAL POWER AND LIGHTING SYSTEMS

### 5.2.1 In-unit Lighting Retrofit – ECM 2.1

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 2,990 | L1 | LEDs provided for hard-wired lamps |
| Marshall Square | KS002000001 | 264 | L1 | LEDs provided for hard-wired lamps |
| Polk Plaza | KS002000002 | 1,141 | L1 | LEDs provided for hard-wired lamps |
| Deer Creek Village | KS002000003 | 1,564 | L1 | LEDs provided for hard-wired lamps |
| Western Plaza | KS002000003 | 363 | L1 | LEDs provided for hard-wired lamps |
| Tyler Towers | KS002000004 | 600 | L1 | LEDs provided for hard-wired lamps |
| Jackson Towers | KS002000005 | 1,114 | L1 | LEDs provided for hard-wired lamps |
| Tennessee Town II | KS002000007 | 272 | L1 | LEDs provided for hard-wired lamps |

Currently, most hardwired fixtures in the units have either screw in 60 watt incandescent bulbs or CFLs. It is recommended that all hardwire fixtures are re-lamped with screw-in replacement 11 watt LED bulbs which will provide equal or greater light output to the existing light bulbs, with comparable shape and distribution. All LED lamps for in-unit applications shall be 2700°K (warm white).

**Improvements to Operations and Maintenance:**

This measure will have no impact on operating or maintenance costs. No repairs are required for this measure to be effective and no new skills are required.

**Impacts to Residents:**

LED bulbs typically last longer than incandescent bulbs, reducing the frequency with which tenants have burned out lights.

**Pricing and Site Specific Installation Notes to Contractor:**

Please price out at a 100% installation rate for these items, represented by the fixture count in the table at the beginning of this section. Basis of design products are available through HD Supply, the Authority's current procurement partner and the model numbers are listed in the spec. Please provide an allowance as a separate

line item for the installation of an additional 10% of lamps. Also, please provide a $10,000 allowance for the replacement of broken fixtures. It is the contractor's responsibility to ensure that selected lamps will fit in the existing fixtures and are compatible with existing voltage and power requirements.

### 5.2.2 Heat Lamp Timers – ECM 2.2

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Tyler Towers | KS002000004 | 75 | T1 | Dial Timers for Bath Heat Lamps |

The bathrooms at Tyler Towers each have a 250W heat lamp that is wall switched separately from the regular lights. These have the potential to be left on for long periods of time. It is recommended that a *Type T1* wall mounted push button timer be installed at these properties, which limits the run time to a maximum of 30 minutes.

**Improvements to Operations and Maintenance:**

This measure will have no impact on operating or maintenance costs. No repairs are required for this measure to be effective and no new skills are required. The equipment life of the timers is estimated to be 10 years.

**Impacts to Residents:**

This measure will not impact occupant health, comfort, or safety.

**Pricing and Site Specific Installation Notes to Contractor:**

*Note that there may be various switching and wiring configurations for the current heat lamp/electric space heater control. This could include two, three and four wires running to the switch plate, the heating element switch located on its own switch plate, and the heating element sharing a switch plate with the bathroom light switch. The Type T1 wall mounted timer should only control the heating element, not the lights. It is the contractor's responsibility to verify on-site conditions, submit, and install a compatible control solution that meets the intent of this narrative. It is also the contractor's responsibility to verify that the proposed timer is compatible with the existing heat lamp volt and power configurations.*

### 5.2.3 Common Area and Exterior Lighting Retrofit – ECM 2.3

Common area and exterior lighting efficiency opportunities were found at the following sites. *On any sites where it is felt that there is not adequate lighting coverage, the GC should coordinate with the lighting sub to generate a photometric map as part of the bid, and indicate which fixtures are replacements as indicated in the measure below and which are new. New fixtures should be proposed to address exterior areas with insufficient light levels.*

*Table 1: Common Area Lighting*

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 6 | R3 | 3x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 1 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 9 | L1 | 11W LED bulbs |
| Marshall Square | KS002000001 | 1 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| Polk Plaza | KS002000002 | 22 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |

| | | | | |
|---|---|---|---|---|
| | | 3 | R4 | 4x2' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 1 | R5 | 2x8' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 1 | X1 | LED exit sign |
| | | 1 | L1 | 11W LED bulbs |
| Tennessee Town I | KS002000002 | 5 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 4 | L1 | 11W LED bulbs |
| Deer Creek Village | KS002000003 | 16 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 17 | R6 | 2-lamp U-bulb T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 5 | R2 | 4x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 18 | L1 | 11W LED bulbs |
| Tyler Towers | KS002000004 | 6 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 1 | R5 | 2x8' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 8 | X1 | LED exit signs |
| Jackson Towers | KS002000005 | 231 | R1 | 2x4' T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 8 | R6 | 2-lamp U-bulb T12 magnetic ballast fixtures, retrofit with T8 electronic |
| | | 14 | R4 | 4x2' T12 magnetic ballast fixtures, retrofit with T8 electronic |

**Pine Ridge Manor**

There are (6) 3-lamp 4' 40W T12 linear fluorescent fixtures and (1) 2-lamp 4' 40W T12 linear fluorescent fixture in the common areas. It is recommended that these fixtures be retrofitted with *Type R3* and *Type R1* (respectively) T8 retrofit kits with electronic ballasts and 28W lamps. There are also (9) incandescent bulbs. It is recommended that these be replaced with *Type L1* 11W LED bulbs.

**Marshall Square**

There is (1) 4' 2-lamp linear fluorescent fixture with 40W T12 bulbs and a magnetic ballast in the laundry room. It is recommended that this be retrofitted with a *Type R1* T8 retrofit kit with new electronic ballasts and 28W bulbs.

**Polk Plaza**

There are (22) 4' 2-lamp T12 linear fluorescent fixtures. It is recommended that these fixtures be retrofitted with *Type R1* T8 retrofit kits with electronic ballasts and 28W lamps. There are (3) 4-lamp 2' 20W T12 fixtures in the common areas. It is recommended that these fixtures be retrofitted with *Type R4* T8 retrofit kits with electronic ballasts and 17W lamps. There is (1) 2-lamp 8' 60W T12 fixture in the common area. It is recommended that this fixture be retrofitted with a *Type R5* T8 retrofit kit with electronic ballasts and 59W lamps.

Additionally, there is (1) incandescent exit sign and (1) screw-in incandescent. It is recommended that these be replaced with a *Type X1* LED exit sign and *Type L1* 11W LED bulbs respectively.

**Tennessee Town I**

There are (5) 2-lamp 4' 40W T12 fixtures in the common areas. It is recommended that these fixtures be retrofitted with *Type R1* T8 retrofit kits with electronic ballasts and 28W lamps. There are also (4) incandescent bulbs in the basement. It is recommended that these be replaced with *Type L1* 11W LED bulbs.

**Deer Creek Village**

There are (16) 4' 2-lamp 40W T12 linear fluorescent fixtures, (17) u-bend 2-lamp 40W T12 fluorescent fixtures, and (5) 4' 4-lamp 40W T12 linear fluorescent fixtures. It is recommended that these all be retrofitted with *Type R1, Type R6,* and *Type R2* (respectively) T8 retrofit kits with new electronic ballasts and 28W T8 lamps. There are also (18) incandescent bulbs throughout the common areas. It is recommended that these be replaced with screw-in *Type L1* 11W LED bulbs.

**Tyler Towers**

There are (6) 4' 2-lamp T12 linear fluorescent fixtures. It is recommended that these fixtures be retrofitted with *Type R1* T8 retrofit kits with electronic ballasts and 28W lamps. There is (1) 2-lamp 8' 60W T12 fixture in the common area. It is recommended that this fixture be retrofitted with a *Type R5* T8 retrofit kit with electronic ballasts and 59W lamps.

Additionally, there are (8) incandescent exit signs. It is recommended that these be replaced with *Type X1* LED exit signs.

**Jackson Towers**

There are (231) 4' 2-lamp T12 linear fluorescent fixtures. It is recommended that these fixtures be retrofitted with *Type R1* T8 retrofit kits with electronic ballasts and 28W lamps. There are (14) 4-lamp 2' 20W T12 fixtures in the common areas. It is recommended that these fixtures be retrofitted with *Type R4* T8 retrofit kits with electronic ballasts and 17W lamps. There are (8) 2-lamp 2' 40W u-shaped T12 fixtures in the common areas. It is recommended that these fixtures be retrofitted with *Type R6* T8 retrofit kits with electronic ballasts and 32W lamps.

*Table 2: Exterior Lighting*

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 10 | W1 | 41W LED wallpacks |
| | | 1 | L2 | 14W LED lamps |
| Marshall Square | KS002000001 | 6 | L2 | 14W LED lamps |
| Polk Plaza | KS002000002 | 2 | P2a | Single headed pole light to be replaced |
| | | 19 | P1a | Single headed pole light to be replaced<br>18W LED lamps |
| | | 3 | L3 | |
| Tennessee Town I | KS002000002 | 12 | L2 | 14W LED lamps |
| Deer Creek Village | KS002000003 | 6 | W1 | 41W LED wallpacks |
| Tyler Towers | KS002000004 | 2 | W1 | 41W LED wallpacks |
| | | 3 | L3 | 18W LED lamps |
| Jackson Towers | KS002000005 | 27 | P2a | Single headed pole light to be replaced |
| | | 1 | W1 | 41W LED wallpacks |
| | | 14 | L3 | 18W LED lamps |

**Pine Ridge Manor**

Exterior lighting is provided by (7) 100W high pressure sodium wall packs and (3) 125W halogen wall packs. It is recommended that the wall packs be replaced with *Type W1* 41W LED wallpacks with integrated photocells. There is also (1) incandescent bulb, which is recommended to be re-lamped with *Type L2* 14W LED bulbs.

**Marshall Square**
There are (3) 2-bulb 90W halogen flood lights that provide exterior lighting. It is recommended that the flood lights be replaced with LED flood light fixtures with (2) *Type L2* 14W LED bulbs per fixture and integral photocell and motion sensor.

**Polk Plaza**
Exterior lighting is provided by (3) 100W incandescent bollards, (2) 400W metal halide 20' pole lights, and (19) 250W metal halide 10' pole lights. It is recommended that the bollards be relamped with *Type L3* 18W LED retrofit lamps and new pole light heads (*Type P2a* 102W LED for the 20' pole and *Type P1a* 70W LED for the 10' pole) be installed.

**Tennessee Town I**
There are (12) 100W incandescent bulbs that provide exterior lighting. It is recommended that these be replaced with *Type L2* 14W LED bulbs.

**Deer Creek Village**

Exterior lighting is provided by (6) 150W metal halide wall packs. It is recommended that the wall packs be replaced with *Type W1* 41W LED wallpacks with integrated photocells.

**Tyler Towers**
Exterior lighting is provided by (3) 100W incandescent cans and (2) 150W metal halide wallpacks. It is recommended that the cans be relamped with *Type L3* 18W LED retrofit lamps and the wallpacks be replaced with *Type W1* 41W LED wallpacks.

**Jackson Towers**
Exterior lighting is provided by (14) 100W incandescent cans, (1) 150W metal halide wallpack, and (27) 250W mercury vapor pole lights. It is recommended that the cans be relamped with *Type L3* 18W LED retrofit lamps, the wallpacks be replaced with *Type W1* 41W LED wallpacks, and new *Type P2a* 102W LED pole light heads be installed.

**Impacts to Operations and Maintenance:**

The equipment life of the new lighting fixtures is expected to be 18 years, which will reduce maintenance costs since they will not need to be replaced as often. No repairs are required for this measure to be effective. No new skills are required.

**Impacts to Residents:**

This measure will not impact occupant health. The lighting levels will not be lowered, but could be improved by the new lighting, which would improve occupant comfort and safety. The new pole lights are integrated with a multi-level motion sensor, which will provide a lower light level when the area is unoccupied. This provides a measure of safety to residents, since the light increasing to full output signals an occupant in the area.

**Pricing and Site Specific Installation Notes to Contractor:**

Basis of design products are available through HD Supply, the Authority's current procurement partner and the model numbers are listed in the spec.

### 5.2.4 Safe-T Range Controls – ECM 2.4

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Marshall Square | KS002000001 | 26 | ST1 | Safe-T Element temperature limiting control stovetops |
| Tennessee Town I | KS002000002 | 25 | ST1 | Safe-T Element temperature limiting control stovetops |
| Tennessee Town II | KS002000007 | 16 | ST1 | Safe-T Element temperature limiting control stovetops |
| Echo Ridge | KS002000008 | 66 | ST1 | Safe-T Element temperature limiting control stovetops |

The stoves at the above sites are electric. It is recommended that the stoves be retrofitted with Temperature Limiting Control burners, which help prevent stovetop fires and save energy by controlling the amount of energy supplied to the existing stovetop burners. The new Temperature Limiting Control burner system consists of solid cast iron cover plates that attach to the existing stovetop burners and a control board to electronically regulate the energy sent to the burners.

The following specifications apply.

- 013300 – SUBMITTAL PROCEDURES
- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017839 – PROJECT RECORD DOCUMENTS
- 017900 – DEMONSTRATION AND TRAINING
- 019113 – GENERAL COMMISSIONING REQUIREMENTS
- 265100 – ELECTRICAL POWER AND LIGHTING SYSTEMS

**Improvements to Operations and Maintenance:**

This measure will have no impact on operating or maintenance costs. No repairs are required for this measure to be effective and no new skills are required.

**Impacts to Residents:**

This measure will not impact occupant comfort, but will reduce the chances of stovetop fires.

**Pricing and Site Specific Installation Notes to Contractor:**

It is the contractor's responsibility to document the existing stove models and range configurations.

### 5.2.5 Refrigerators – ECM 2.5

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 10 | Rf1 | Energy Star refrigerators |

Group14 evaluated all audited refrigerators and identified those with a rated annual energy consumption of more than 650 kWh/year. There are (10) refrigerators at this site that meet this requirement. It is recommended that these inefficient refrigerators be replaced with Energy Star refrigerators.

Existing fridges should be replaced with 12 cubic feet refrigerators that are ENERGY STAR® rated appliances. The color shall be white, and the maximum height shall be 59.5", maximum width shall be 24", and maximum depth shall be 30".

The following specifications apply.

- 013300 – SUBMITTAL PROCEDURES
- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017839 – PROJECT RECORD DOCUMENTS
- 017900 – DEMONSTRATION AND TRAINING
- 019113 – GENERAL COMMISSIONING REQUIREMENTS
- 114000 – REFRIGERATORS

**Improvements to Operations and Maintenance:**

Installing new, Energy Star refrigerators will reduce the amount of maintenance required by existing units, and ensure that replacement parts are available.

**Impacts to Residents:**

This measure will not impact occupant health or safety. In units where the refrigerators are broken or dirty, a replacement could improve occupant comfort.

**Pricing and Site Specific Installation Notes to Contractor:**

It is the contractor's responsibility to document the existing refrigerator models.

## 5.3 Envelope

### 5.3.1 Attic Insulation – ECM 3.1

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 211 | In1 | Unit attic insulation level increased to R-38 and air seal attic penetrations |
| Marshall Square | KS002000001 | 26 | In1 | Unit attic insulation level increased to R-38 and air seal attic penetrations |
| Deer Creek Village | KS002000003 | 92 | In1 | Unit attic insulation level increased to R-38 and air seal attic penetrations |
| Western Plaza | KS002000003 | 22 | In1 | Unit attic insulation level increased to R-38 and air seal attic penetrations |

At the above sites, some duct and wiring penetrations at the attic floor are not air-sealed, creating thermal bridging. It is recommended that attic penetrations – including flues, ductwork, electrical penetrations, plumbing penetrations, and any gaps near the roof edge – be thoroughly air sealed with foam insulation.

The energy audits indicated an average level of R-10 insulation in the attic of each of the buildings at the above sites. The insulation level should be increased to R-38. All air gaps greater than 1 square inch in the attic floor should be sealed with spray foam insulation.

The following specifications apply.

- 013300 – SUBMITTAL PROCEDURES
- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017839 – PROJECT RECORD DOCUMENTS
- 017900 – DEMONSTRATION AND TRAINING
- 019113 – GENERAL COMMISSIONING REQUIREMENTS
- 072100 – THERMAL INSULATION

**Pricing and Installation Notes to Contractor:**

The sites may have varying levels of insulation. The contractor should take this into consideration when anticipating the expected amount of additional insulation needed at each site. It is the contractor's responsibility to document the existing insulation levels and air sealing needs at each site. At some sites, there may not be an attic for each unit due to multistory buildings. In this case, the contractor should provide a deduct where the attic insulation is not needed.

**Improvements to Operations and Maintenance:**

The addressing of shingle, penetration, and repair issues should extend the life of the roof and minimize future roof-related operations and maintenance issues.

**Impacts to Residents:**

The increased insulation level in the attic should make occupants more comfortable due to reduced radiant heat loss.

### 5.3.2 Infiltration Reduction – ECM 3.2

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 58 | I1 | Reduce building infiltration |
| Marshall Square | KS002000001 | 42 | I2 | Reduce building infiltration |
| Tennessee Town I | KS002000002 | 31 | I1 | Reduce building infiltration |
| Deer Creek Village | KS002000003 | 50 | I1 | Reduce building infiltration |
| Western Plaza | KS002000003 | 38 | I1 | Reduce building infiltration |

In general most sites already have door and window weather stripping. However, there were multiple sources of infiltration identified at audited units throughout the site.

The following scope items should be evaluated by the installing contractor and executed as needed:

- Seal attic hatch - Weatherstrip the attic access hatch or door. Cut 1x3 boards to fit the perimeter of the opening and nail them on with 6d finish nails. Apply self-adhesive foam weather strip tape to the top edge of the stop.
- Seal duct boots to wall, ceiling, or floor - Using mastic or caulk, seal the duct boot to the ceiling or floor. Seal any visible seams in the inside of the boot.
- Seal top plates - Seal top plates to interior drywall at attic/exterior wall interfaces. This air sealing is to take place in the attic.
- Exterior wall electrical boxes - Seal electrical boxes and switches on exterior walls using foam gaskets.
- Attic electrical and plumbing penetrations - Check for gaps in the attic that facilitate air movement by checking for dirty insulation. Seal the gaps with caulk or expanding foam. When complete and dry, push the insulation back into place.
- Furnace and/or water heater flues (attic penetrations) - Cut aluminum flashing to fit around the flue. For round flues, cut half circles out of two pieces so they overlap about 3 inches in the middle. Press the flashing metal into a bead of high-temperature caulk and staple or nail it into place. If there's no wood, staple or nail it directly to the drywall, but be sure not to staple or nail through the drywall. Seal the gap between the flue and metal flashing with special high-temperature caulk. Don't use spray foam. Form an insulation dam to prevent insulation from contacting the flue pipe. Cut enough aluminum from the coil to wrap around the flue plus 6 inches. Cut slots 1 inch deep and a few inches apart along the top and bend the tabs in. Cut slots about 2 inches deep along the bottom and bend out the tabs. Wrap the dam around the flue and secure the bottom by stapling through the tabs. Put insulation back right up against the dam.

The following specifications apply.

- 013300 – SUBMITTAL PROCEDURES
- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017900 – DEMONSTRATION AND TRAINING
- 019113 – GENERAL COMMISSIONING REQUIREMENTS

**Improvements to Operations and Maintenance:**

This measure will have no impact on operating or maintenance costs. No repairs are required for this measure to be effective and no new skills are required.

**Impacts to Residents:**

Helps to eliminate drafts, allowing residents to be more comfortable.

**Pricing and Site Specific Installation Notes to Contractor:**

Location of needed weather stripping and air insulation are site specific. Contractor is ultimately responsible for locating all necessary infiltration-reduction needs.

## 5.4 Mechanical

### 5.4.1 Central Air Handing Unit Replacement and HVAC Controls Upgrade – ECM 4.1

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Polk Plaza | KS002000002 | 1 | AHU1 | Convert the older air handler from a multi-zone constant volume systems to variable air volume systems. |

At Polk Plaza there is one large multi-zone hot deck/cold deck air handling unit. This unit has a total of three zones that feed the first floor common areas. The unit is equipped with a hot water coil serviced from the boilers in the adjacent room. A direct expansion coil is serviced by a 44 ton R-22 remote condensing unit on the North side of the building.

This ECM incorporates the upgrade and replacement of the air handling unit, remote condensing unit, system controls and piping insulation.

Please consider the following while pricing the project:

1. A new air handling unit shall replace the hot/cold deck air handling unit. The air handling unit shall be equipped with a Dx Coil and be capable of 100% economizer operation.
2. New VAVs shall connect to the combined existing hot/cold deck duct work and be equipped with a hot water re-heat coil fed from the hot water system. Hot water coils to be adequately sized to eliminate the need for an additional coil pump.
3. The remote condensing unit shall have a minimum EER 11 and IPLV of 15.5. Refrigeration piping shall meet the manufacturer's requirements. Contractor to include in the pricing the replacement of the refrigeration piping as the unit will be replaced to meet the EPA refrigerant requirements.
4. The plant shall also have a new control system. The new control system shall replace the current control system by controlling the AHU's, VAV's, condensing unit and boilers. The system shall meet the following system sequences/requirements:
    a. AHU:
        i. Comparative economizer operation allowing for the economizer to operate until the outside air temperature is greater than the return air temperature when there is a call for cooling.
        ii. Discharge air temperature reset to be field adjustable. System will be modeled around a 55F-65F reset. The heating discharged would be assumed to be around 90F.
        iii. Incorporate a zone space night time setback of 65F (adj) for heating and 80F (adj) for cooling.
        iv. Daytime setpoints of 72F (adj) with a 5F dead band.
        v. Optimized morning warm-up.
    b. Boiler
        i. Hot water rest controlling the mixing valve to maintain a recommended hot water loop temperature of reset of HWS120F-180F when OAT 65F-0F. The heat shall be locked out at OAT 65F (adj). Optimize to mitigate the use of personal electric heaters in the units while still maintaining approximately 115F of entering water on the radiators furthest from the hot water plant.

   c. All control components shall be tested to ensure that they operate properly and are calibrated properly.

5. Replace all heating/cooling system loop pump motors with premium-efficiency motors of equal size. Motors should be rated for inverter duty.
6. Provide and install VFD for each motor. VFD installation should include a means for bypassing the VFD, should it malfunction.
7. Install a differential pressure (DP) sensor as near the end of the system as possible. The sensor should be located in a section of straight pipe not less than 2 inches in diameter, with 40 inches of straight pipe on either side. The DP sensor should be installed out of sight and access of residents.
8. Configure the piping to maintain the minimum required flow by installing bypass controls near the end of the piping riser runs.
9. Provide and post instructions near the VFD that explain how to operate the system and specifically how to change DP setpoints. Instructions should be protected by a water-resistant cover through which instructions are visible.
10. Load and ventilation calculations shall also be performed and available for the owner and commissioning agents review.
11. The Contractor shall provide a full and operational system including but not limited to the equipment, dedicated power supplies, piping/supports, anchors, pumps, boilers and associated controls.
12. The Contractor shall be responsible for the demolition, removal and proper disposal of all of the existing equipment to be replaced. Any regulated materials shall comply with state and federal regulations.
13. The Contractor shall secure all permits and inspections required for demolition and installation.
14. The Contractor shall work with and assist the Owner's Commissioning Agent to commission the plant operation.
15. The Contractor shall be responsible for the design and construction of the installation in its entirety, and shall secure the services of qualified professionals as required to complete this scope of work.
16. Insulate all exposed existing and new piping.
17. Contractor should train THA personnel on how to operate the new equipment.

**Improvements to Operations and Maintenance:**

The new equipment will restart the clock on the life cycle of the mechanical equipment. In addition to the equipment being newer lowering the number of services calls, the newer equipment will have a higher level of control and reduced energy consumption.

**Benefit to Residents:**

The increased control of the air handling unit and hot water plant will provide for a more comfortable area in the first floor common areas.

**Pricing and Site Specific Installation Notes to Contractor:**

Price project with current AHU plant size. Before final equipment selection, contractor shall be responsible for load calculation and equipment sizing per specifications. **It should be noted that the contractor is ultimately responsible for verifying site conditions.** Contractor will be responsible for issuing a deduct if plant has been reduced significantly in size.

### 5.4.2 Exhaust Fan ECM Upgrade – ECM 4.2

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Polk Plaza | KS002000002 | 10 | EF1 | Exhaust Fan EC motor upgrade |
| Tyler Towers | KS002000004 | 8 | EF1 | Exhaust Fan EC motor upgrade |

At Polk Plaza there are ten building exhaust fans. Each fan feeds a common exhaust riser stack that serves the units and corridors. Each fan runs continually to provide a constant amount of exhaust and ventilation.

At Tyler Towers there are eight building exhaust fans. Each fan feeds a common exhaust riser stack that serves the units and corridors. Each fan runs continually to provide a constant amount of exhaust and ventilation.

This ECM incorporates either replacing the motor with a drop in EC Motor replacement or replacing the entire exhaust fan with a premium efficiency fan equipped with an EC motor.

Please consider the following while pricing the project:

1. The exhaust fans shall be properly balanced per flow to meet the minimum code exhaust and ventilation requirements per the original design and meet ASHRAE 62.1/IBC. It should be noted that at Polk Plaza other than the air handler on the first floor that their does not appear to be another form of ventilation. Pre and post retrofit flow rates shall be documented and communicated to the owner in writing.
2. Ventilation calculations when performed shall be available for the owner and commissioning agent to review prior to ordering equipment.
3. The contractor is responsible for all scope in order to supply the owner with an operational system including but not limited to the equipment, dedicated power supplies, test and balance.
4. The Contractor shall be responsible for the demolition, removal and proper disposal of all of the existing equipment to be replaced. Any regulated materials shall comply with state and federal regulations.
5. The Contractor shall secure all permits and inspections required for demolition and installation.
6. The Contractor shall work with and assist the Owner's Commissioning Agent.
7. The Contractor shall be responsible for the design and construction of the installation in its entirety, and shall secure the services of qualified professionals as required to complete this scope of work.
8. Contractor should train THA personnel on how to operate the new equipment.

**Improvements to Operations and Maintenance:**

The new equipment will restart the clock on the life cycle of the mechanical equipment and lower the number of services calls. By ensuring proper ventilation and exhaust in the units/corridors the amount of mold or indoor air contaminants in the space shall be reduced increasing IAQ.

**Benefit to Residents:**

By ensuring that each space has adequate ventilation, there will be a higher level of indoor air quality throughout the building.

**Pricing and Site Specific Installation Notes to Contractor:**

The scope shall be priced as a like for like replacement of the motor within the system, and the contractor shall price up the system replacement accordingly. If the fan size changes dramatically the contractor shall supply the owner with a reasonable deduct or reason for cos increase prior to ordering the equipment.

### 5.4.3 Multi Zone AC Upgrade – ECM 4.3

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Polk Plaza | KS002000002 | N/A | Window AC's | Remove existing window ACs and install a Multi Zoned Wall Mount Air Conditioners |

At Polk Plaza there are window air conditioners provided by THA in the common areas on each floor. While the window air conditioners are the only means of cooling the hallways they are a source of major infiltration and inefficiency.

This ECM incorporates the removal of the existing window air conditioners and replacement with an air cooled multi-zoned air conditioning system.

Please consider the following while pricing the project:

1. Utilize a Mitsubishi Electric Multi City cooling only or a Daiken Multi-Zone cooling only system as a basis of design. The owner is however not tied to these brands if an or equal is presented being equivalent.
2. The units shall be tamper proof (including controls) and all exposed elements (ex: piping) other than the fan coil unit concealed.
3. The condensate shall discharge into an appropriate floor drain or sewer pipe.
4. The Contractor shall provide a fully operational system including but not limited to the equipment, dedicated power supplies, piping/supports, anchors, pumps and associated controls.
5. The Contractor shall be responsible for the demolition, removal and proper disposal of all of the existing equipment to be replaced. Any regulated materials shall comply with state and federal regulations.
6. Existing window air conditioners to be supplied to the owner for their owner stock after removal.
7. The Contractor shall secure all permits and inspections required for demolition and installation.
8. The Contractor shall work with and assist the Owner's Commissioning Agent.
9. The Contractor shall be responsible for the design and construction of the installation in its entirety, and shall secure the services of qualified professionals as required to complete this scope of work.
10. Contractor should train THA personnel on how to operate the new equipment.

**Improvements to Operations and Maintenance:**

The new air conditioners will reduce the overall energy consumption by eliminating the window AC's and improve aesthetics.

**Benefit to Residents:**

The newer AC's will provide quitter more even corridor summer time temperatures.

**Pricing and Site Specific Installation Notes to Contractor:**

The contractor is responsible for all components of this scope and to verify all site conditions.

### 5.4.4 Central Plant Controls Upgrade – ECM 4.4

| Site Name | Project # | Count and Descriptions | |
|---|---|---|---|
| Tyler Towers | KS002000004 | C1 | Upgrade central heating and cooling plant controls. |

Tyler Towers central plant consists of 2 power vent, natural gas Weil McLain boilers, one 1,904 MBH output and one 3,270 MBH output that are original to the building. There is (1) 5 hp constant volume space heating distribution pump. Chilled water is supplied by a new McQuay air cooled 160 ton chiller. There are 2 constant volume chilled water pumps (7.5 hp each). The central plant services a series of two pipe fan coil units. Currently the summer winter switch over is a manual process in which a local HVAC service contractor is hired to come manually switch the units between summer and winter operation.

Due to the overall good condition of the central plant equipment this ECM incorporates upgrading the central plant controls and a couple of other non-control minor upgrades.

Please consider the following when assembling your pricing:

1. The controls upgrade should be able to incorporate the following upgrades:
    a. Automatic Summer/Winter switch over operation. The pricing shall include all valves, unit interlocks, remote access and conform to the specifications.
    b. The controls shall also be able to meet the following sequences of operation. The following sequences are recommendation though and do not account for all of the minor sequence changes associated with the controls operation.
        i. *Enable boilers and lock out chiller when the outside air temperature falls below 62 F (adj.). Disable boilers when outside air temperature rises above 65 F (adj.). Stage and modulate boilers using manufacturer's controls to meet the HWST setpoint. Close isolation valves to the chilled water portions of the system.*
        ii. *The HWST Setpoint shall be reset according to a linear outdoor air reset schedule in which the design hot water temperature, 180 F (Adj.), is delivered at the design outdoor air condition, 0 F (Adj.), and a lower, 150 F (Adj.) HWS is delivered at the high outdoor air temperature, 60 F (Adj.). Reset shall be adjust to ensure that the return water temperature to the boiler does not drop below 140F.*
        iii. E*nable chiller when the outside air temperature rises above 75 F (adj.). Ensure that there is a 10 F (adj.) dead band to ensure that simultaneous heating and cooling does not occur. Stage and modulate chiller using manufacturer's controls to meet the CHWST setpoint. Close isolation valves to the heating water portions of the system.*
        iv. *The CHWS Setpoint shall be reset according to a linear outdoor air reset schedule in which the design chilled water supply temperature, 45 F (Adj.), is delivered at the design outdoor air condition, 95 F (Adj.), and a higher, 55 F (Adj.) CHWS is delivered at the lower outdoor air temperature, 75 F (Adj.). Reset shall be adjust to ensure that the fan coil unit furthest from the chiller is producing approximately 65 F air on a 75 F day.*
    c. The mechanical contractor is considered a design build contractor and is responsible for furnishing a fully functional central plant controls upgrade. The above mentioned sequences are outlined as a guide for minimum plant operation. All final recommended controls sequences shall be submitted to the owner and their commissioning agent prior to ordering and installing them.

2. Insulate all exposed existing and new piping per the specifications listed below.
3. Contractor shall perform a full maintenance of central plant system components. This includes the boilers, chillers, pumps, etc.
4. The Contractor shall provide a full and operational system including but not limited to the electrical work, equipment, piping/supports, anchors, valves and associated controls.
5. The Contractor shall be responsible for the demolition, removal and proper disposal of all of the existing equipment to be replaced. Any regulated materials shall comply with state and federal regulations.
6. The Contractor shall secure all permits and inspections required for demolition and installation.
7. The Contractor shall work with and assist the Owner's Commissioning Agent.
8. The Contractor shall be responsible for the design and construction of the installation in its entirety, and shall secure the services of qualified professionals as required to complete this scope of work.
9. Contractor shall train THA personnel on how to operate the new equipment. Local IOM manuals and instructions shall be left present at the site.
10. Refer to performance-based specifications of this report.

**Improvements to Operations and Maintenance:**

The new central plant controls will lower the annual maintenance costs associated with the seasonal transition from summer to winter. The remote access will allow the housing authority to remotely monitor the status of plant. The controls will complement the newer chiller maximizing its function and efficiency.

**Benefit to Residents:**

Tighter controls of the system will allow the residence to more accurately control their space temperature. The automatic summer/winter transition will allow the residence to achieve both heating and cooling during a day. This change however may need to be explained to longtime residents.

**Pricing and Site Specific Installation Notes to Contractor:**

Contractor is ultimately responsible for verifying site conditions and supply all items associated with this scope.

### 5.4.5 DHW Pump Upgrade – ECM 4.5

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Tyler Towers | KS002000004 | 1 | DWCP | Upgrade DHW to an ECM Pump. |

Tyler Towers currently has a constant speed 1/6 Hp power pump serving the domestic water heater. Replace the pump with an EC Motor Pump that matches the flow requirements of the boiler. If the pump is utilized as a domestic water re-circulation pump then provide a pump that has the ability to automatically adjust flow based upon demand.

### 5.4.6 Fan Coil Unit Upgrade – ECM 4.6

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Tyler Towers | KS002000004 | 75 | FCU | Upgrade In-unit Fan Coil motor and control |
| Tyler Towers | KS002000004 | TBD | FCU | Upgrade Corridor Fan Coil motor and control |

Tyler currently has fan coil units that are equipped with permanent split capacitor (PSC) motors, non-digital thermostats (a cooler/warmer switch) and a fan selector switch. The fan coil units are currently equipped with a 3-way valve and aqua-stat that allows the unit to heat/cool depending on what the switch is set to and the temperature of the water (ex: want heat + hot water = heating).

This ECM involves upgrading the controls of the fan coil units and replacing the PSC motor with an electrically computated motor (EC Motor). The fan coil units controls shall be upgraded by providing a digital non-programmable thermostat capable of varying the fan motor speed based upon deviation away from setpoint increasing occupant comfort and energy efficiency. There are also a fair amount of 3-way zone valves that are not currently functioning. These valves and the fan coil unit functionality shall be evaluated.

Please consider the following when assembling pricing:

- The A.O. Smith Comfort Select ECM motor can be utilized as a basis of design for the ECM motor replacement. Contractor is required to verify motor voltage, size and wiring configuration.
- Contractor to submit one line wiring diagrams to the owner and owners commissioning agent for approval prior to installation.
- Contractor to provide proposed wiring schematic and brief control narrative to the owner and owner's commissioning agent for approval prior to installation. This cost must be included in the bid.
- Additional wires may need to be run between the fan coil unit and new thermostat. This cost must be included in the bid.
- Provide a non-programmable thermostat with the ability to take advantage of the ECM modulation/staging and the ability to operate in fan only mode. Integrate with existing aqua-stat to allow for the 2 pipe to automatically change between heating and cooling.
- Cleaning of the units to be included into the pricing. Cleaning includes but is not limited to unit cabinet, coil, blower wheel and assembly (if not replaced).
- A sticker prompt should be included to encourage a 66°F nighttime set point and a 70°F daytime set point for heating. The sticker design will be provided by the owner, but the contractor will be responsible for printing and installing the prompt.

**Improvements to Operations and Maintenance:**

New fan coil unit fan motors will push back the date at which the unit fan coil motors would have to be replaced due to reaching end of life cycle, and will reduce the number of heating-related calls experienced. Additionally, allowing the motors to modulate to lower speeds will lessen the amount of air that cycles through the unit potentially decreasing the number of filter changes and at a minimum increasing the durations between full service of the fan coil unit.

**Impacts to Residents:**

Increasing the functionality and user control of the fan coil units will likely allow the residences to more accurately control the temperature in their homes decreasing the number of service calls. The addition of the ECM fan motors will likely lead to less air noise and encourage more even space temperatures with controls that operate at lower speeds for longer.

**Pricing and Site Specific Installation Notes to Contractor:**

Drawings are available from the original construction from the owner. Drawings are however not as-builds of the actual project and should be utilized as a reference only. Contractor is responsible for final counts and verifying on-site conditions. Price the project with as a per unit price with a new 3-way valve allowance of 50%. Contractor will be responsible for issuing a deduct for every valve that is not installed. Contractor is responsible for final valve and thermostat replacement counts. **It should be noted that the contractor is ultimately responsible for verifying site conditions.**

### 5.4.7 Central Plant Boiler Replacement – ECM 4.7

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Jackson Towers | KS002000005 | 1 | B1 | Install New Modular Condensing Space Heating Boiler Plant with Setpoint Enable and OA Reset Controls |

Jackson Towers are served by 2 atmospheric, natural gas Ajax boilers (1,600 MBH output each). There are 2 constant volume space heating distribution pumps (10 hp each). The boilers are also controlled in part by the Solidyne M2 controls system

This ECM includes replacing both space heating boilers with 2 modulating power draft boilers (minimum 4:1 turn down ratio). The new boilers shall be designed so that each can handle 2/3 of peak heating load. Heat loss calculations shall be performed to determine the necessary capacity of the new boilers without oversizing.

The new system scope should include the following:

1. A new boiler control system shall be installed to operate the boilers and pumps with the following sequence of control:
    a. *Enable boilers when the outside air temperature falls below 62 F (adj.). Disable boilers when outside air temperature rises above 65 F (adj.). Stage and modulate boilers using manufacturer's controls to meet the HWST setpoint. Close isolation valve when respective boiler is not enabled.*
    b. *The HWST Setpoint shall be reset according to a linear outdoor air reset schedule in which the design hot water temperature, 180 F (Adj.), is delivered at the design outdoor air condition, 0 F (Adj.), and a lower, 120 F (Adj.) HWS is delivered at the high outdoor air temperature, 60 F (Adj.). This reset is to be optimized to maintain at least 115F at the furthest FCU.*
    c. *The HW circulation pumps shall stage run a constant speed. Pumps shall activate on outside air temperature and enable with the boilers.*
2. Combustion air intakes and flues shall be installed for the new power vent boilers and terminated per the manufacturer's recommended installation guidelines. Once direct vent combustion air is in place, the existing combustion air openings shall be sealed off and insulation shall be added to the exterior wall if needed.
3. The contractor needs to confirm the flue termination meets the manufacturer's clearance requirements. Flue paths should be approved by the owner prior to installation.
4. Contractor shall perform a load calculation to the owner and right size the equipment. A like for like replacement will not be accepted.
5. The Contractor shall provide a full and operational system including but not limited to the electrical work, flues, combustion air, natural gas piping, equipment and piping supports, anchors, pumps, boilers and associated controls.
6. The Contractor shall be responsible for the demolition, removal and proper disposal of all of the existing equipment to be replaced. Any regulated materials shall comply with state and federal regulations.

7. The Contractor shall secure all permits and inspections required for demolition and installation.
8. The Contractor shall work with and assist the Owner's Commissioning Agent to commission the plant operation.
9. The Contractor shall be responsible for the design and construction of the installation in its entirety, and shall secure the services of qualified professionals as required to complete this scope of work.
10. The Contractor shall coordinate and program the boiler plant controls. At a minimum, this should include optimized control of the supply water temperature based on the condenser water system setpoint and an outside air lockout control. The Contractor shall document all installed setpoints, provide documentation to the owner, and fully train the Owner on setpoint adjustment.
11. Insulate all exposed existing and new piping.
12. Contractor should train THA personnel on how to operate the boiler plant.
13. Refer to performance-based specifications of this report.

**Improvements to Operations and Maintenance:**

New boilers will extend the lifecycle of the plant, and will reduce the number of maintenance and repair work orders.

**Pricing and Site Specific Installation Notes to Contractor:**

Price project with current boiler plant size. Before final equipment selection, contractor shall be responsible for load calculation and equipment sizing per specifications. **It should be noted that the contractor is ultimately responsible for verifying site conditions.** Contractor will be responsible for issuing a deduct if plant has been reduced significantly in size.

### 5.4.8 Central Plant Chiller Replacement – ECM 4.8

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Jackson Towers | KS002000005 | 1 | CH1 | Install a new chiller |

The current chilled water plant consists of two 120 ton Carrier Reciprocating Chillers and a remote air cooled condensing unit. Replace the existing 1992 Carrier chiller with an appropriately sized air-cooled chiller. The COP of the new chiller should be at a minimum of 3.19 and have an IPLV of 14.5.

Please consider the following while pricing:

1. The contractor shall provide a fully operational chilled water system including but not limited to the electrical work, equipment, piping, pumps, and all associated controls.
2. This project is considered a design build project and the contractor is responsible for all necessary design responsibilities to meet the expectations outlined in this scope of work. A load calculation, piping layout and drawings are part of the design scope of work. Design to be submitted to the owner for review prior to ordering equipment.
3. The new plant controls shall integrate with the existing Solidyne M2 Controls and meet the following sequence requirements. The following sequences are recommendation though and do not account for all of the minor sequence changes associated with the controls operation:
    a. The controls shall also be able to meet the following sequences of operation.
        *i. Enable chiller when the outside air temperature rises above 75 F (adj.). Ensure that there is a 10 F (adj.) dead band to ensure that simultaneous heating and cooling*

*does not occur. Stage and modulate chiller using manufacturer's controls to meet the CHWS setpoint.*

ii. *The CHWS Setpoint shall be reset according to a linear outdoor air reset schedule in which the design chilled water supply temperature, 45 F (Adj.), is delivered at the design outdoor air condition, 95 F (Adj.), and a higher, 55 F (Adj.) CHWS is delivered at the lower outdoor air temperature, 75 F (Adj.). Reset shall be adjust to ensure that the fan coil unit furthest from the chiller is producing approximately 65 F air on a 75 F day.*

b. Careful consideration shall be given to the location of the outdoor temperature sensor so that it is sensing true ambient conditions. Reset shall be tuned during cold and warm conditions to provide maximum comfort and efficiency.

c. Control drawings and or narrative shall be submitted to the owner prior to ordering the equipment for approval.

4. The Contractor shall be responsible for the demolition, removal and proper disposal of all of the existing equipment to be replaced. This includes but is not limited to any regulated materials such as asbestos, lead, etc. Regulated materials shall be disposed of in accordance with local and federal regulations.
5. The Contractor shall secure all permits and inspections required for demolition and installation.
6. The new chiller shall include a factory start-up. This factory start-up shall include at least one return trip for the purposes of tuning and optimizing plant operation.
7. Piping & Pumping shall meet the following requirements:
   a. One line piping diagram shall be provided to owner prior to ordering any equipment.
   b. Insulate all exposed piping.
8. If applicable, the Contractor shall work with and assist the Owner's Commissioning Agent to commission the plant operation.
9. Install a means of water treatment and hire a qualified firm to flush and treat the both the newly installed components and hydronic heat piping. The means of water treatment installed shall be based on the results of a water quality test conducted by the contractor or it's sub, and be provided to the Owner and CxA for approval.
10. One full hard copy of O&M's shall be present at the site and electronic O&M's presented to the owner upon completion of the project.

**Improvements to Operations and Maintenance:**

A new air cooled chiller will place a reset on the chiller life cycle currently at 24 yrs of age and showing signs with several noticeable repairs. Limiting the amount of refrigerant piping to the exterior of the building will decrease the life safety concerns with the possibility of a leak in the mechanical room and lower maintenance repairs in the future.

**Pricing and Site Specific Installation Notes to Contractor:**

Price project with current plant size. Before final equipment selection, contractor shall be responsible for load calculation and equipment sizing per specifications. **It should be noted that the contractor is ultimately responsible for verifying site conditions.** Contractor will be responsible for issuing a deduct if plant has been reduced significantly in size.

### 5.4.9 Upgrade Furnaces – ECM 4.9

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 211 | F1 | 94%+ AFUE condensing 2-stage furnaces |
| Deer Creek Village | KS002000003 | 92 | F1 | 94%+ AFUE condensing 2-stage furnaces |

*Note that either this ECM or the Aquatherm ECM presented below (ECM 4.11) will be included in the project, but not both.*

The space heating system at these properties consists of individual furnaces in each unit. Some of these furnaces are more than 20 years old. The efficiency of each furnace was recorded for a 10% sample of the housing development units. The replacement of furnaces with new 94%+ AFUE condensing 2-stage models is recommended in sites where inefficient non-condensing models more than 7 years old are currently in place. A new thermostat shall be installed that takes full advantage of the staging and efficiency performance of the new furnace.

Please consider the following when assembling pricing:

- Additional wires may need to be run between the furnace and new thermostat. This cost must be included in the bid.
- Provide a non-programmable thermostat with the ability to take advantage of the staging and the ability to operate in fan only mode.
- On units equipped with a swamp cooler, include a low loss, low leakage spring loaded backdraft damper to isolate furnace while the swamp cooler is in operation.
- Furnaces need to be installed per code. This includes meeting any dedicated power requirements. Any costs associated with code requirements of the Authority Having Jurisdiction must be included in the bid.
- A Manual J compliant load calculation and Manual S compliant sizing must be performed to properly size the new furnaces. The load calculation should assume the infiltration reduction and attic insulation measures listed in this report have been performed. All load and sizing calculations shall be submitted to the owner and commissioning agent for approval before any equipment is ordered. It was noted during the audit that most units were oversized. **Do NOT bid like for like capacities with existing equipment before evaluating loads.** Some of the original plans are available for the properties and when available will be utilized as a means of reference for the sizing of the equipment.
- A sticker prompt should be included to encourage a 66°F nighttime set point and a 70°F daytime set point for heating. The sticker design will be provided by the owner, but the contractor will be responsible for printing and installing the prompt.
- Include a detailed description of the proposed flue routing for the new condensing furnace with the bid that meets code and manufacturer requirements. Exterior flue penetrations should be capped with a bird screen and be out of reach of any residents. The proposed flue route will need to be approved by the commissioning agent and owner.
- Verify that gas piping and pressure meet manufacturer requirements. Any cost for modifications must be included in bid.
- All visible and accessible ducts shall be sealed with a SMACNA approved material.
- Install turning vanes in all T and elbow duct fittings accessible from the furnace. Turning vanes can be single wall.
- All equipment shall be started per manufacturer requirements. Also include documentation of proper airflow, filtration, gas pressure, temperature rise, and controls configuration. Start-up documentation shall be left on site and submitted to the owner and commissioning agent. A sample start up report shall be included in the bid specifications.

- The following performance-based specification sections are related to this scope of work (note: some information in the specifications may relate to other scopes of work and may not be germane to this scope of work):
    - 013300 – SUBMITTAL PROCEDURES
    - 014000 – QUALITY REQUIREMENTS
    - 017823 – OPERATION AND MAINTENANCE DATA
    - 017900 – DEMONSTRATION AND TRAINING
    - 019113 – GENERAL COMMISSIONING REQUIREMENTS
    - 230529 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT
    - 231123 – FACILITY NATURAL-GAS PIPING
    - 235400 – FURNACES

**Improvements to Operations and Maintenance:**

New furnaces will push back the date at which the unit furnaces would have to be replaced due to reaching end of life cycle, and will reduce the number of heating-related calls experienced. Additionally, all furnaces will be provided by the same manufacturer, improving the ease of maintenance and repair.

**Impacts to Residents:**

The new furnaces will likely be capable of more heating output than the current equipment, keeping the residents more comfortable. Installation of digital thermostats will allow for more accurate thermal control. Any sites that see airflow rebalancing will improve thermal comfort.

**Pricing and Site Specific Installation Notes to Contractor:**

Size furnaces at 30 btu/SF for pricing purposes. Before final equipment selection, contractor shall be responsible for load calculation and equipment sizing per specifications. **It should be noted that the contractor is ultimately responsible for verifying site conditions.**

## 5.4.10 Convert Electric Resistance Heat to Heat Pumps – ECM 4.10

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Marshall Square | KS002000001 | 26 | HP | 9.5 HSPF heat pumps |

The space conditioning system at these properties consists of a split AC system with electric resistance heating located in a closet in each unit. The air-cooled condensing units currently provide cooling-only. The replacement of these systems with split heat pump systems is recommended. The new systems should be rated to achieve 9.5 HSPF (and 16 SEER in cooling mode). Because the current systems use R-22 refrigerant, a new indoor unit and refrigerant piping will likely be required. Because of the EPA phase out of R-22 this will eventually be necessary anyway, but will increase installation cost. It is recommended that thermostats are installed to take full advantage of the energy efficiency performance of the new system.

Please consider the following when assembling pricing:

- Additional wires may need to be run between the furnace and new thermostat. This cost must be included in the bid.
- Provide a non-programmable digital thermostat with the ability to take advantage of the staging and the ability to operate in fan only mode.
- A Manual J compliant load calculation and Manual S compliant sizing must be performed to properly size the new heat pumps. All load and sizing calculations shall be submitted to the owner and commissioning agent for approval before any equipment is ordered. Please also remember to take into consideration the size of the existing fan coil unit and utilize it again if possible.

- A sticker prompt should be included to encourage a 66°F nighttime set point and a 70°F daytime set point for heating. The sticker design will be provided by the owner, but the contractor will be responsible for printing and installing the prompt.
- All visible and accessible ducts shall be sealed with a SMACNA approved material.
- Install turning vanes in all T and elbow duct fittings accessible from the furnace. Turning vanes can be single wall.
- All equipment shall be started per manufacturer requirements. Also include documentation of proper airflow, filtration, gas pressure, temperature rise, and controls configuration. Start-up documentation shall be left on site and submitted to the owner and commissioning agent. A sample start up report shall be included in the bid specifications.
- The following performance-based specification sections are related to this scope of work (note: some information in the specifications may relate to other scopes of work and may not be germane to this scope of work):
    - 013300 – SUBMITTAL PROCEDURES
    - 014000 – QUALITY REQUIREMENTS
    - 017823 – OPERATION AND MAINTENANCE DATA
    - 017900 – DEMONSTRATION AND TRAINING
    - 019113 – GENERAL COMMISSIONING REQUIREMENTS
    - 230529 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT
    - 231123 – FACILITY NATURAL-GAS PIPING
    - 235400 – FURNACES (HEATPUMP)

**Improvements to Operations and Maintenance:**

New heat pumps will push back the date at which the unit HVAC equipment would have to be replaced due to reaching end of life cycle, and will reduce the number of heating/cooling-related calls experienced. Additionally, all furnaces will be provided by the same manufacturer, improving the ease of maintenance and repair.

**Impacts to Residents:**

The new heat pump will likely be capable of more even heating output than the current equipment, keeping the residents more comfortable. Installation of digital thermostats will allow for more accurate thermal control. Any sites that see airflow rebalancing will improve thermal comfort.

**Pricing and Site Specific Installation Notes to Contractor:**

Size furnaces the heat at 30 btu/SF for pricing purposes. Before final equipment selection, contractor shall be responsible for load calculation and equipment sizing per specifications. **It should be noted that the contractor is ultimately responsible for verifying site conditions.**

## 5.4.11 Aquatherms – ECM 4.11

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Pine Ridge Manor | KS002000001 | 211 | A1 | Aquatherm systems with EF 0.67 DHW heaters |
| Deer Creek Village | KS002000003 | 92 | A1 | Aquatherm systems with EF 0.67 DHW heaters |

*Note that either this ECM or the Furnace ECM presented above (ECM 4.9) will be included in the project, but not both.*

The Aquatherm system utilizes a domestic water heater as the primary source of heat and instead of a gas heating furnace replacement a high efficiency fan coil unit with a domestic water rated heating coil is installed. This measure is intended as a means for the housing authority to both save on first installation costs and simplify maintenance.

Please consider the following when assembling pricing:

- The fan coil units shall have a low loss cabinet, domestic water rated heating coil, pump timer and EC motor. First Company fan coil units should be utilized as a basis of design.
- Water haters should be sized to accommodate both the reduced domestic hot water needs (from replacing the shower heads and aerators) and the increased needs of the fan coil unit. Water heaters shall be sized to maximize the efficiency at 140F and Energy Star rated models that have a minimum Energy Factor (EF) of .67.
- Water heaters must be installed per code requirements of the Authority Having Jurisdiction. Include an emergency drain pan piped to a floor drain or acceptable location approved by the owner. Also include an expansion tank on the cold water line. Expansion tank and water heater need to be installed with a proper means of isolation.
- Additional wires may need to be run between the aquatherm and new thermostat. This cost must be included in the bid.
- Provide a non-programmable thermostat with the ability to take advantage of the staging and the ability to operate in fan only mode.
- Aquatherm Fan Coil Units need to be installed per code. This includes meeting any dedicated power requirements. Any costs associated with code requirements of the Authority Having Jurisdiction must be included in the bid.
- A Manual J compliant load calculation and Manual S compliant sizing must be performed to properly size the new furnaces. The load calculation should assume the infiltration reduction and attic insulation measures listed in this report have been performed. All load and sizing calculations shall be submitted to the owner and commissioning agent for approval before any equipment is ordered. It was noted during the audit that most units were oversized. **Do NOT bid like for like capacities with existing equipment before evaluating loads.** Some of the original plans are available for the properties and when available will be utilized as a means of reference for the sizing of the equipment.
- A sticker prompt should be included to encourage a 66°F nighttime set point and a 70°F daytime set point for heating. The sticker design will be provided by the owner, but the contractor will be responsible for printing and installing the prompt.
- Include a detailed description of the proposed flue routing for the new condensing water with the bid that meets code and manufacturer requirements. Exterior flue penetrations should be capped with a bird screen and be out of reach of any residents. The proposed flue route will need to be approved by the commissioning agent and owner.
- Verify that gas piping and pressure meet manufacturer requirements. Any cost for modifications must be included in bid.
- All visible and accessible ducts shall be sealed with a SMACNA approved material.
- Install turning vanes in all T and elbow duct fittings accessible from the furnace. Turning vanes can be single wall.
- All equipment shall be started per manufacturer requirements. Also include documentation of proper airflow, filtration, gas pressure, temperature rise, and controls configuration. Start-up documentation shall be left on site and submitted to the owner and commissioning agent. A sample start up report shall be included in the bid specifications.
- The following performance-based specification sections are related to this scope of work (note: some information in the specifications may relate to other scopes of work and may not be germane to this scope of work):
    - 013300 – SUBMITTAL PROCEDURES

- 014000 – QUALITY REQUIREMENTS
- 017823 – OPERATION AND MAINTENANCE DATA
- 017900 – DEMONSTRATION AND TRAINING
- 019113 – GENERAL COMMISSIONING REQUIREMENTS
- 230529 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT
- 231123 - FACILITY NATURAL-GAS PIPING
- 235400 – AQUATHERMS

**Improvements to Operations and Maintenance:**

By providing one source of heat per unit the complexity of the system is reduced. This allows for a lower skill level of maintenance worker to diagnose no heat calls possible reducing service calls. Upgrading to EC motors also allow for better modulation in times of low demand possibly reducing the filter changes required. One possible maintenance concession would be a reduction in water heater life expectancy.

**Impacts to Residents:**

A properly sized Aquatherm fan coil unit with an EC motor will offer a more even space temperature with a less air noise.

**Pricing and Site Specific Installation Notes to Contractor:**

Size Aquatherms at 30 btu/SF for pricing purposes. Before final equipment selection, contractor shall be responsible for load calculation and equipment sizing per specifications. **It should be noted that the contractor is ultimately responsible for verifying site conditions.**

## 5.5 Renewable Energy

### 5.5.1 Photovoltaic Systems – ECM 5.1

| Site Name | Project # | Count and Descriptions | | |
|---|---|---|---|---|
| Polk Plaza | KS002000002 | 1 | PV1 | Install a roof mounted photovoltaic system and replace roof |
| Tyler Towers | KS002000004 | 1 | PV2 | Install carport or ground mounted photovoltaic systems |
| Jackson Towers | KS002000005 | 1 | PV2 | Install carport or ground mounted photovoltaic systems |
| Deer Creek Village | KS002000003 | 1 | PV3 | Install a roof mounted photovoltaic system on the community center roof |

At Polk Plaza, a roof top mounted PV system is recommended. with a goal of maximizing efficiency and sizing the system to offset as much of the buildings load as possible without generating excess electricity (“kWh”). The age of the roof necessitates its replacement with a new EPDM roof as part of the Solar PV installation.

At Tyler Towers and Jackson Towers, a carport and or ground mount photo voltaic (“PV”) system is recommended with a goal of maximizing efficiency and sizing the system to offset as much of the buildings load as possible without generating excess electricity (“kWh”). Both properties have ample lawn (ground) space and onsite surface parking which provides an opportunity for a sizable ground mount and or carport mount style PV system.

**Improvements to Operations and Maintenance:**

The installation of PV systems will have little impact on the operations and maintenance ("O&M") of the site. PV systems require very little O&M on a routine basis and THA is seeking pricing for a third party local solar contractor to provide annual O&M. The car ports also require little maintenance. In the event of a snow, care should be taken when shoveling or plowing the snow near or around the carport ground mounts to ensure they are not struck or damaged.

**Impacts to Residents:**

The PV systems will have no impact on the residents other than potentially providing a sense of pride that their homes are being powered with clean renewable energy. The car ports will have a positive impact on the residents by providing both shade in the warm summer months and protection from snow, rain, and hail in the winter months.

**Pricing and Site Specific Installation Notes to Contractor:**

**Tyler Towers**

Address: 600 SW 14th St, Topeka, KS 66604

Construction Type: Steel Frame

Number of Stories: 9

Approximate Number of parking stalls: 31 south and 41 west

Parking lot details: Surface parking, asphalt

Approximate SF of parking lot: 28,000

**Electrical System**

Meter Type: Master Meter

Rate Class: Commercial

Electrical Panel: To be verified by contractor

Load Profile: See attached utility data spreadsheet

**Jackson Towers**

Address: 1122 SW Jackson St, Topeka, KS 66612

Construction Type: Steel Frame

Number of Stories: 8

Approximate Number of parking stalls: 43

Parking lot details: Surface parking, asphalt

Approximate SF of parking lot: 30,000

**Electrical System**

Meter Type: Master Meter

Rate Class: Commercial

Electrical Panel: To be verified by contractor

Load Profile: See attached utility data spreadsheet

**General Notes for All Properties**

*Scope and pricing approach:* This ECM requires a solar contractor(s) to provide a design assist approach where the solar contractor is required to provide a turnkey design, engineering, procurement, and construction (EPC) approach including:

Optimization and analysis of the capacity (KW) and economics ($/watt) of the following PV system scenarios:

Ground mount System

Carport mount system

Combination of a ground mount and carport mount system

Roof Top System

All required design, permitting, applications, and other requirements required by the jurisdiction having local authority as well as utility companies

Procurement and construction of the complete PV system

Interconnection

Required meters

*Sizing:* The systems should be design and sized to offset as much of the load of the building as possible without the generation of additional electricity which would go back to the grid through net metering or a similar program (if applicable).

*Parking:* The PV systems and carports must accommodate the existing parking density (# of parking spaces) and may not eliminate any parking spaces. In addition, this ECM includes any stripping or redesign or placement of existing parking spaces.

*Warranty:*

2 years materials and workmanship

Solar panel performance of 90 percent of nameplate at year 10 and 80 percent of nameplate at year 25 via pass through of module manufacturer warranty

20-year inverter warranty

*Rebates / Incentives / Tax Credits:* The solar contractor is to work with THA in maximizing and securing any utility rebates, renewable energy credits, and potentially monetizing any available tax credits.

*Ownership Structure:* Pricing and analysis for this ECM should assume THA owns the PV systems outright and there is no third party ownership or power purchase agreement (“PPA”).

*Operations and Maintenance:* This ECM requires an annual O&M contract for 20 years where the solar contract is to provide pricing for such services.

# Section 3 Business Preference Submittal Form
# Energy Performance contract GC Exhibit 2

---

**1.0** **Introduction:** **This form must be fully completed, accompanied by all required attachments, for any bidder/proposer claiming a Section 3 Business Preference (hereinafter, "Preference").**

**1.1** **This fully completed form and any attachments thereto, will become a part of any ensuing contract.**

**1.2** **Each bidder/proposer shall mark an "X" where provided following for all that apply to his/her claim of a Preference.**

**1.3** **The bidder/proposer shall provide as an attachment to this completed form a detailed work plan clearly explaining how each following "denoted effort" or "claim" will be accomplished). Failure on the part of the bidder/proposer to include any such required attachment fully explaining the claim of the bidder/proposer shall result in the HA not considering the claim for a Preference (though the HA will, if awarded, later require the bidder/proposer to submit the information to satisfy the Section 3 requirements of the ensuing contract).**

**1.4** **Please note that, even if a bidder/proposer does not complete and submit this form claiming a Preference, the HA may required this form to be completed by the successful bidder/proposer as an attachment to the ensuing contract to document the Section 3 Plan required for the ensuing contract.**

**2.0** **Current Section 3 Status:** **The undersigned bidder/proposer hereby claims that it is a Section 3 business concern and claims such preference in that he/she can provide evidence that (the bidder/proposer has attached justifying documentation for each item following marked with an "X"):**

**2.1** **____It is 51% or more owned by a Section 3 resident:**

**2.1.1** **___ HA resident lease;**
**2.1.2** **___ Evidence of participation in a public assistance program;**
**2.1.3** **___ Articles of Incorporation;**
**2.1.4** **___ Fictitious or Assumed Business Name Certificate;**
**2.1.5** **___ List of owners/stockholders and % of each;**
**2.1.6** **___ Latest Board minutes appointing officers;**
**2.1.7** **___ Organization chart with names and titles and brief functional statement;**
**2.1.8** **___ Partnership Agreement;**

---

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

2.1.9 ___ Corporation Annual Report.

2.2 ____At least 30% of its full time employees include persons that are currently Section 3 residents, or within 3 years of the date of first employment with the business concern were Section 3 residents:

2.2.1 To justify this claim, please see the immediate following:

| (1) Classification | (2) Total Number of Current Permanent Employees | (3) Total Number of Section 3 Resident Employees |
|---|---|---|
| Trainees | | |
| Apprentices | | |
| Journeypersons | | |
| Laborers | | |
| Supervisory | | |
| Superintendent | | |
| Professional | | |
| Clerical | | |
| Other: | | |

2.2.2 Attach a listing of all employees listed within column (3) above, including name and total annual income.

2.3 ____He/she has a commitment to subcontract in excess of 25% of the dollar award of all subcontracts to be awarded to a Section 3 business concern.

2.3.1 To justify this claim, please see the immediate following:

| (1) Name of Section 3 Firm Receiving the Subcontract | (2) Total Amount of Subcontract(s) | (3) Percentage the Subcontract(s) is/are of the Total Proposed Contract Amount |
|---|---|---|

_____ _____ _____ _____

Signature Date Printed Name Company

| | | |
|---|---|---|
| | $ | % |
| | $ | % |
| | $ | % |

**2.3.2** **Attach for each firm listed immediately above:**

**2.3.2.1** **A detailed description of the subcontracted activity; and**

**2.3.2.2** **A fully completed Profile of Firm form.**

**3.0** **<u>Section 3 Preference Claim, Training and Employment Opportunities:</u> The undersigned bidder/proposer hereby claims that it will, as detailed within 24 CFR §135.34, provide such "opportunities" as denoted following; to:**

**3.1** **___ Residents of the housing development or developments for which the section 3 covered assistance is expended (category 1 residents);**

**3.2** **___ Residents of other housing developments managed by the HA that is expending the section 3 covered housing assistance (category 2 residents);**

**3.3** **___ Participants in HUD Youthbuild programs being carried out in the metropolitan area (or nonmetropolitan county) in which the section 3 covered assistance is expended (category 3 residents);**

**3.4** **___ Other section 3 residents.**

**4.0** **<u>Section 3 Preference Claim, Section 3 Business Concerns:</u> The undersigned bidder/proposer hereby claims that it will, as a result of the contract award, and as detailed within 24 CFR §135.36, provide such "opportunities" as denoted following; to:**

**4.1** **___ Business concerns that are 51 percent or more owned by residents of the housing development or developments for which the section 3 covered assistance is expended, or whose full-time, permanent workforce includes 30 percent of these persons as employees (category 1 businesses);**

**4.2** **___ Business concerns that are 51 percent or more owned by residents of other housing developments or developments managed by the HA that is expending the section 3**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

covered assistance, or whose full-time, permanent workforce includes 30 percent of these persons as employees (category 2 businesses); or

4.3 ___ HUD Youthbuild programs being carried out in the metropolitan area (or nonmetropolitan county) in which the section 3 covered assistance is expended (category 3 businesses).

4.4 ___ Business concerns that are 51 percent or more owned by section 3 residents, or whose permanent, full-time workforce includes no less than 30 percent section 3 residents (category 4 businesses), or that subcontract in excess of 25 percent of the total amount of subcontracts to business concerns identified in paragraphs (a)(1)(i) and (a)(1)(ii) of this section.

5.0 As further detailed herein, which of the following priority are you claiming? (NOTE: Mark with an "X" the highest claimed Priority only.)

| PRIORITY CLAIMED (Mark "X") | MAX POINT VALUE | FACTOR TYPE | FACTOR DESCRIPTION |
|---|---|---|---|
| | | Objective | SECTION 3 BUSINESS PREFERENCE PARTICIPATION: (NOTE: A maximum of 15 points awarded). |
| | 15 points | | Priority I, Category 1a: Business concerns that are 51 percent or more owned by residents of the housing development or developments for which the Section 3-covered assistance is expended. |
| | 13 points | | Priority II, Category 1b: Business concerns whose workforce includes 30 percent of residents of the housing development for which the Section 3-covered assistance is expended, or within three (3) years of the date of first employment with the business concern, were residents of the Section 3-covered housing development. |
| | 11 points | | Priority III, Category 2a: Business concerns that are 51 percent or more owned by residents of any other housing development or developments. |
| | 9 points | | Priority IV, Category 2b: Business concerns whose |

_____ _____ _____ _____

Signature Date Printed Name Company

| | | | |
|---|---|---|---|
| | | | workforce includes 30 percent of residents of any other public housing development or developments, or within three (3) years of the date of first employment with the business concern, were "Section 3" residents of any other public housing development. |
| | 7 points | | Priority V, Category 3: Business concerns participating in HUD Youth-build programs being carried out in the metropolitan area in which the Section 3-covered assistance is expended. |
| | 5 points | | Priority VI, Category 4a: Business concerns that are 51 percent or more owned by Section 3 residents in the metropolitan area, or whose permanent, full-time workforce includes no less than 30 percent of Section 3 residents in the metropolitan area, or within three (3) years of the date of employment with the business concern, were Section 3 residents in the metropolitan area. |
| | 3 points | | Priority VII, Category 4b: Business concerns that subcontract in excess of 25 percent of the total amount of subcontracts to Section 3 business concerns. |

**6.0** **As detailed within 24 CFR §135, Appendix I, *Examples of Efforts To Offer Training and Employment Opportunities to Section 3 Residents*, denote the "efforts" your firm hereby formally commits to implement if you are awarded a contract:**

**6.1** **___ Entering into "first source" hiring agreements with organizations representing Section 3 residents.**

**6.2** **___ Sponsoring a HUD-certified "Step-Up" employment and training program for section 3 residents.**

**6.3** **___ Establishing training programs, which are consistent with the requirements of the Department of Labor, for public and Indian housing residents and other section 3 residents in the building trades.**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

**6.4** **___ Advertising the training and employment positions by distributing flyers (which identify the positions to be filled, the qualifications required, and where to obtain additional information about the application process) to every occupied dwelling unit in the housing development or developments where category 1 or category 2 persons (as these terms are defined in §135.34) reside.**

**6.5** **___ Advertising the training and employment positions by posting flyers (which identify the positions to be filled, the qualifications required, and where to obtain additional information about the application process) in the common areas or other prominent areas of the housing development or developments. For HAs, post such advertising in the housing development or developments where category 1 or category 2 persons reside; for all other recipients, post such advertising in the housing development or developments and transitional housing in the neighborhood or service area of the section 3 covered project.**

**6.6** **___ Contacting resident councils, resident management corporations, or other resident organizations, where they exist, in the housing development or developments where category 1 or category 2 persons reside, and community organizations in HUD-assisted neighborhoods, to request the assistance of these organizations in notifying residents of the training and employment positions to be filled.**

**6.7** **___ Sponsoring (scheduling, advertising, financing or providing in-kind services) a job informational meeting to be conducted by an HA or contractor representative or representatives at a location in the housing development or developments where category 1 or category 2 persons reside or in the neighborhood or service area of the section 3 covered project.**

**6.8** **___ Arranging assistance in conducting job interviews and completing job applications for residents of the housing development or developments where category 1 or category 2 persons reside and in the neighborhood or service area in which a section 3 project is located.**

**6.9** **___ Arranging for a location in the housing development or developments where category 1 persons reside, or the neighborhood or service area of the project, where job applications may be delivered to and collected by a recipient or contractor representative or representatives.**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

**6.10** ___ **Conducting job interviews at the housing development or developments where category 1 or category 2 persons reside, or at a location within the neighborhood or service area of the section 3 covered project.**

**6.11** ___ **Contacting agencies administering HUD Youthbuild programs, and requesting their assistance in recruiting HUD Youthbuild program participants for the HA's or contractor's training and employment positions.**

**6.12** ___ **Consulting with State and local agencies administering training programs funded through JTPA or JOBS, probation and parole agencies, unemployment compensation programs, community organizations and other officials or organizations to assist with recruiting Section 3 residents for the HA's or contractor's training and employment positions.**

**6.13** ___ **Advertising the jobs to be filled through the local media, such as community television networks, newspapers of general circulation, and radio advertising.**

**6.14** ___ **Employing a job coordinator, or contracting with a business concern that is licensed in the field of job placement (preferably one of the section 3 business concerns identified in part 135), that will undertake, on behalf of the HA, other recipient or contractor, the efforts to match eligible and qualified section 3 residents with the training and employment positions that the HA or contractor intends to fill.**

**6.15** ___ **For an HA, employing section 3 residents directly on either a permanent or a temporary basis to perform work generated by section 3 assistance. (This type of employment is referred to as "force account labor" in HUD's Indian housing regulations. See 24 CFR §905.102, and §905.201(a)(6).)**

**6.16** ___ **Where there are more qualified section 3 residents than there are positions to be filled, maintaining a file of eligible qualified section 3 residents for future employment positions.**

**6.17** ___ **Undertaking job counseling, education and related programs in association with local educational institutions.**

**6.18** ___ **Undertaking such continued job training efforts as may be necessary to ensure the continued employment of section 3 residents previously hired for employment opportunities.**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

**6.19 ___ After selection of bidders but prior to execution of contracts, incorporating into the contract a negotiated provision for a specific number of public housing or other section 3 residents to be trained or employed on the section 3 covered assistance.**

**6.20 ___ Coordinating plans and implementation of economic development (e.g., job training and preparation, business development assistance for residents) with the planning for housing and community development.**

**7.0 As detailed within 24 CFR §135, Appendix II, *Examples of Efforts To Award Contracts to Section 3 Business Concerns,* denote following the "efforts" your firm hereby formally commits to implement if you are awarded a contract:**

**7.1 ___ Utilizing procurement procedures for section 3 business concerns similar to those provided in 24 CFR part 905 for business concerns owned by Native Americans (see section III of this Appendix).**

**7.2 ___ In determining the responsibility of potential contractors, consider their record of section 3 compliance as evidenced by past actions and their current plans for the pending contract.**

**7.3 ___ Contacting business assistance agencies, minority contractors associations and community organizations to inform them of contracting opportunities and requesting their assistance in identifying section 3 businesses which may solicit bids or proposals for contracts for work in connection with section 3 covered assistance.**

**7.4 ___ Advertising contracting opportunities by posting notices, which provide general information about the work to be contracted and where to obtain additional information, in the common areas or other prominent areas of the housing development or developments owned and managed by the HA.**

**7.5 ___ For HAs, contacting resident councils, resident management corporations, or other resident organizations, where they exist, and requesting their assistance in identifying category 1 and category 2 business concerns.**

**7.6 ___ Providing written notice to all known section 3 business concerns of the contracting opportunities. This notice should be in sufficient time to allow the section 3 business concerns to respond to the bid invitations or request for proposals.**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

**7.7** ___ **Following up with section 3 business concerns that have expressed interest in the contracting opportunities by contacting them to provide additional information on the contracting opportunities.**

**7.8** ___ **Coordinating pre-bid meetings at which section 3 business concerns could be informed of upcoming contracting and subcontracting opportunities.**

**7.9** ___ **Carrying out workshops on contracting procedures and specific contract opportunities in a timely manner so that section 3 business concerns can take advantage of upcoming contracting opportunities, with such information being made available in languages other than English where appropriate.**

**7.10** ___ **Advising section 3 business concerns as to where they may seek assistance to overcome limitations such as inability to obtain bonding, lines of credit, financing, or insurance.**

**7.11** ___ **Arranging solicitations, times for the presentation of bids, quantities, specifications, and delivery schedules in ways to facilitate the participation of section 3 business concerns.**

**7.12** ___ **Where appropriate, breaking out contract work items into economically feasible units to facilitate participation by section 3 business concerns.**

**7.13** ___ **Contacting agencies administering HUD Youthbuild programs, and notifying these agencies of the contracting opportunities.**

**7.14** ___ **Advertising the contracting opportunities through trade association papers and newsletters, and through the local media, such as community television networks, newspapers of general circulation, and radio advertising.**

**7.15** ___ **Developing a list of eligible section 3 business concerns.**

**7.16** ___ **For HAs, participating in the "Contracting with Resident-Owned Businesses" program provided under 24 CFR part 963.**

**7.17** ___ **Establishing or sponsoring programs designed to assist residents of public or Indian housing in the creation and development of resident-owned businesses.**

**7.18** ___ **Establishing numerical goals (number of awards and dollar amount of contracts) for award of contracts to section 3 business concerns.**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

**7.19 ___ Supporting businesses which provide economic opportunities to low income persons by linking them to the support services available through the Small Business Administration (SBA), the Department of Commerce and comparable agencies at the State and local levels.**

**7.20 ___ Encouraging financial institutions, in carrying out their responsibilities under the Community Reinvestment Act, to provide no or low interest loans for providing working capital and other financial business needs.**

**7.21 ___ Actively supporting joint ventures with section 3 business concerns.**

**7.22 ___ Actively supporting the development or maintenance of business incubators which assist Section 3 business concerns.**

**8.0 The undersigned bidder/proposer hereby declares:**

**8.1 The information within this completed form (and any attachments) is, to the best of his/her knowledge, true and accurate.**

**8.2 He/she is aware that if the HA discovers that any such information is not true and accurate, such shall allow the HA to:**

**8.2.1 NOT award the bidder/proposer a Preference; and**

**8.2.2 If the HA deems such is warranted (e.g. in the case of submitting information the bidder/proposer knows to be untrue), declare such bidder/proposer to be nonresponsive and not allow the bidder/proposer to receive an award.**

**8.3 He/she is aware that if he/she receives and award as the result of this competitive solicitation, even though he/she may not receive a Preference from the HA as a result of this submittal, he/she will still be required to, to the greatest extent feasible, implement a Section 3 Plan, including a commitment to interview and consider hiring Section 3 persons (most specifically, residents of the HA) whenever the successful bidder/proposer has need to hire additional employees during the term of the ensuing contract.**

| _____ | _____ | _____ | _____ |
|---|---|---|---|
| **Signature** | **Date** | **Printed Name** | **Company** |

EXHIBIT 3

**U.S. Department of Housing and Urban Development**

Office of Public and Indian Housing

# Instructions to Bidders for Contracts Public and Indian Housing Programs

EXHIBIT 3

# Instructions to Bidders for Contracts

Public and Indian Housing Programs

## Table of Contents


| Clause | Page |
|---|---|
| 1. Bid Preparation and Submission | 1 |
| 2. Explanations and Interpretations to Prospective Bidders | 1 |
| 3. Amendments to Invitations for Bids | 1 |
| 4. Responsibility of Prospective Contractor | 1 |
| 5. Late Submissions, Modifications, and Withdrawal of Bids | 1 |
| 6. Bid Opening | 2 |
| 7. Service of Protest | 2 |
| 8. Contract Award | 2 |
| 9. Bid Guarantee | 3 |
| 10. Assurance of Completion | 3 |
| 11. Preconstruction Conference | 3 |
| 12. Indian Preference Requirements | 3 |


## 1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

## 2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

## 3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

## 4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

(1) Integrity;

(2) Compliance with public policy;

(3) Record of past performance; and

(4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

## 5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

## 6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

## 7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

## 8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

### 9. **Bid Guarantee** (applicable to construction and equipment contracts exceeding $25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

### 10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[ ] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[ ] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[ ] (3) a 20 percent cash escrow;

[ ] (4) a 25 percent irrevocable letter of credit; or,

[ ] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website **http://www.fms.treas.gov/c570/index.html**, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

### 11. **Preconstruction Conference** (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

### 12. **Indian Preference Requirements** (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [ ] does [ ] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

EXHIBIT 4

**U.S. Department of Housing and Urban Development**

Office of Public and Indian Housing

# Representations, Certifications, and Other Statements of Bidders

# Public and Indian Housing Programs

EXHIBIT 4

# Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

**Table of Contents**


| Clause | | Page |
|---|---|---|
| 1. | Certificate of Independent Price Determination | 1 |
| 2. | Contingent Fee Representation and Agreement | 1 |
| 3. | Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions | 1 |
| 4. | Organizational Conflicts of Interest Certification | 2 |
| 5. | Bidder's Certification of Eligibility | 2 |
| 6. | Minimum Bid Acceptance Period | 2 |
| 7. | Small, Minority, Women-Owned Business Concern Representation | 2 |
| 8. | Indian-Owned Economic Enterprise and Indian Organization Representation | 2 |
| 9. | Certification of Eligibility Under the Davis-Bacon Act | 3 |
| 10. | Certification of Nonsegregated Facilities | 3 |
| 11. | Clean Air and Water Certification | 3 |
| 12. | Previous Participation Certificate | 3 |
| 13. | Bidder's Signature | 3 |


## 1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above.

_____ [insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[ ] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding $50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [ ] is, [ ] is not included with the bid.

## 2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [ ] has, [ ] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [ ] has, [ ] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

## 3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding $100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

## 4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

(a) Result in an unfair competitive advantage to the bidder; or,

(b) Impair the bidder's objectivity in performing the contract work.

[ ] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

## 5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

## 6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

## 7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [ ] is, [ ] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [ ] is, [ ] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [ ] is, [ ] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

| | |
|---|---|
| [ ] Black Americans | [ ] Asian Pacific Americans |
| [ ] Hispanic Americans | [ ] Asian Indian Americans |
| [ ] Native Americans | [ ] Hasidic Jewish Americans |

## 8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [ ] is, [ ] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [ ] is, [ ] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

**9. Certification of Eligibility Under the Davis-Bacon Act** (applicable to construction contracts exceeding $2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

**10. Certification of Nonsegregated Facilities** (applicable to contracts exceeding $10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed $10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

**Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities**

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

**Note:** The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

**11. Clean Air and Water Certification** (applicable to contracts exceeding $100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [ ] is, [ ] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

**12. Previous Participation Certificate** (applicable to construction and equipment contracts exceeding $50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate"

[ ] is, [ ] is not included with the bid.

**13. Bidder's Signature**

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

_____
(Signature and Date)

_____
(Typed or Printed Name)

_____
(Title)

_____
(Company Name)

(Company Address)

EXHIBIT 5

**U.S. Department of Housing and Urban Development**
Office of Public and Indian Housing

OMB No. 2577-0094 (exp. 11/30/2003)

# General Conditions of the **Contract for Construction**

## Public Housing Programs

Previous edition is obsolete

form **HUD-5370** (12/2001)
ref Handbooks 7417.1 & 7485.3G

EXHIBIT 5

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 24 CFR 85.36 and those requirements set forth in Section 3 of the Housing and Urban development Act of 1968, as amended, and implemented by HUD at 24 CFR 135 and by its amendment by the Housing and Community Development Act 1992, implemented by HUD in the Interim Rule published June 30, 1994. The form is required for construction contracts awarded by Public Housing Agencies (PHAs) .

The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Responses to the collection of information; are required to obtain a benefit or to retain a benefit.

The information requested does not lend itself to confidentiality.

HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number

EXHIBIT 5

**Table of Contents**


| Clause | | Page |
|---|---|---|
| | **Conduct of Work** | |
| 1. | Definitions | 1 |
| 2. | Contractor's Responsibility for Work | 2 |
| 3. | Architect's Duties, Responsibilities, and Authority | 2 |
| 4. | Other Contracts | 2 |
| | **Construction Requirements** | |
| 5. | Preconstruction Conference and Notice to Proceed | 3 |
| 6. | Construction Progress Schedule | 3 |
| 7. | Site Investigation and Conditions Affecting the Work | 3 |
| 8. | Differing Site Conditions | 4 |
| 9. | Specifications and Drawings for Construction | 4 |
| 10. | As-Built Drawings | 5 |
| 11. | Material and Workmanship | 5 |
| 12. | Permits and Codes | 5 |
| 13. | Health, Safety, and Accident Prevention | 6 |
| 14. | Temporary Heating | 6 |
| 15. | Availability and Use of Utility Services | 6 |
| 16. | Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements | 6 |
| 17. | Temporary Buildings and Transportation of Materials | 7 |
| 18. | Clean Air and Water | 7 |
| 19. | Energy Efficiency | 7 |
| 20. | Inspection and Acceptance of Construction | 7 |
| 21. | Use and Possession Prior to Completion | 8 |
| 22. | Warranty of Title | 8 |
| 23. | Warranty of Construction | 8 |
| 24. | Prohibition Against Liens | 9 |

| Clause | | Page |
|---|---|---|
| | **Administrative Requirements** | |
| 25. | Contract Period | 9 |
| 26. | Order of Precedence | 9 |
| 27. | Payments 9 | |
| 28. | Contract Modifications | 10 |
| 29. | Changes | 11 |
| 30. | Suspension of Work | 11 |
| 31. | Disputes | 12 |
| 32. | Default | 12 |
| 33. | Liquidated Damages | 13 |
| 34. | Termination for Convenience | 13 |
| 35. | Assignment of Contract | 13 |
| 36. | Insurance 13 | |
| 37. | Subcontracts | 14 |
| 38. | Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms | 14 |
| 39. | Equal Employment Opportunity | 14 |
| 40. | Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968. | 15 |
| 41. | Interest of Members of Congress | 15 |
| 42. | Interest of Members, Officers, or Employees and Former Members, Officers, or Employees | 15 |
| 43. | Limitations on Payments made to Influence Certain Federal Financial Transactions | 15 |
| 44. | Royalties and Patents | 15 |
| 45. | Examination and Retention of Contractor's Records | 15 |
| 46. | Labor Standards - Davis-Bacon and Related Acts | 16 |
| 47. | Labor Standards - Non-Routine Maintenance | 19 |
| 48. | Non-Federal Prevailing Wage Rates | 21 |


# General Conditions of the Contract for Construction

Public and Indian Housing Programs

## Conduct of Work

### 1. Definitions

(a) **"Architect"** means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.

(b) **"Contract"** means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5369-A), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from either the U.S. Department of Labor or HUD, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.

(c) **"Contracting Officer"** means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.

(d) **"Contractor"** means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.

(e) **"Drawings"** means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled **Specifications and Drawings for**

**Construction** herein.

(f) **"HUD"** means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.

(g) **"Project"** means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.

(h) **"PHA"** means the Public Housing Agency organized under applicable state laws which is a party to this contract.

(i) **"Specifications"** means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.

(l) **"Work"** means materials, workmanship, and manufacture and fabrication of components.

### 2. Contractor's Responsibility for Work

(a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled **Availability and Use of Utility Services** herein.

(b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [ ] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.

(c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.

(f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.

(g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.

(h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

### 3. Architect's Duties, Responsibilities, and Authority

(a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

(b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the **Changes** clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.

(c) The Architect's duties and responsibilities may include but shall not be limited to:

(1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;

(2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;

(3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,

(4) Assisting in inspections, signing Certificates of Comple-

tion, and making recommendations with respect to acceptance of work completed under the contract.

### 4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees.

## Construction Requirements

### 5. Preconstruction Conference and Notice to Proceed

(a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.

(b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

### 6. Construction Progress Schedule

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled ***Inspection and Acceptance of Construction***, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the **Default** clause of this contract.

### 7. Site Investigation and Conditions Affecting the Work

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

(b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

### 8. Differing Site Conditions

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the

character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

**9. Specifications and Drawings for Construction**

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place", that is "furnished and installed".

(d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

(h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.

(i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

**10. As-Built Drawings**

(a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."

(b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

(c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

**11. Material and Workmanship**

(a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) Approval of equipment and materials.

(1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

(3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.

(4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.

(5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of re-testing materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.

(6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.

(c) Prohibition against use of lead-based paint. The Contractor shall comply with the prohibition against the use of lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

**12. Permits and Codes**

(a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled **Changes** herein to conform to the code or regulation.

(b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

**13. Health, Safety, and Accident Prevention**

(a) In performing this contract, the Contractor shall:
  (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
  (2) Protect the lives, health, and safety of other persons;
  (3) Prevent damage to property, materials, supplies, and equipment; and,
  (4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:
  (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 327 et seq.; and,
  (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.

(d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

**14. Temporary Heating**

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

**15. Availability and Use of Utility Services**

(a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

**16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements**

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.

(b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.

(d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.

(e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

(f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.

(g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.

(h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or

finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.

(i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.

(j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

(k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

**17. Temporary Buildings and Transportation of Materials**

(a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

**18. Clean Air and Water** Applicable to Contracts in Excess of $100,000

(a) Definition. "Facility" means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by the Contractor or any subcontractor, used in the performance of the contract or any subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, or a designee, of the Environmental Protection Agency (EPA) determines that independent facilities are collocated in one geographical area.

(b) In compliance with regulations issued by the United States Environmental Protection Agency (EPA), 40 CFR Part 15, pursuant to the Clean Air Act, as amended ("Air Act"), 42 U.S.C. 7401, et seq., the Federal Water Pollution Control Act, as amended ("Water Act"), 33 U.S.C. 1251, et seq., and Executive Order 11738, the Contractor agrees to —

(1) Not utilize any facility in the performance of this contract or any subcontract which is listed on the EPA List of Violating Facilities pursuant to Part 15 of the regulations for the duration of time that the facility remains on the list;

(2) Promptly notify the Contracting Officer if a facility the Contractor intends to use in the performance of this contract is on the EPA List of Violating Facilities or the Contractor knows that it has been recommended to be placed on the List;

(3) Comply with all requirements of the Air Act and the Water Act, including the requirements of Section 114 of the Air Act and Section 308 of the Water Act, and all applicable clean air and clean water standards; and,

(4) Include or cause to be included the provisions of this clause in every subcontract, and take such action as HUD may direct as a means of enforcing such provisions.

**19. Energy Efficiency**

The Contractor shall comply with all standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

**20. Inspection and Acceptance of Construction**

(a) Definitions. As used in this clause -

(1) **"Acceptance"** means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.

(2) **"Inspection"** means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.

(3) **"Testing"** means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the

completed work under paragraph (j) below.

(d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.

(e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The PHA may conduct routine inspections of the construction site on a daily basis.

(g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.

(i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

**21. Use and Possession Prior to Completion**

(a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled **Permits and Codes** herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas occupied without proper remuneration therefor. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

**22. Warranty of Title**

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

**23. Warranty of Construction**

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.

(b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defects of equipment, material, workmanship or de-

sign furnished by the Contractor.

(c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.

(d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.

(e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
   (1) Obtain all warranties that would be given in normal commercial practice;
   (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
   (3) Enforce all warranties for the benefit of the PHA.

(g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

(h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.

(i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.

(j) This warranty shall not limit the PHA's rights under the **Inspection and Acceptance of Construction** clause of this contract with respect to latent defects, gross mistakes or fraud.

### 24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

## Administrative Requirements

### 25. Contract Period

The Contractor shall complete all work required under this contract within ___ calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

### 26. Order of Precedence

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

### 27. Payments

(a) The PHA shall pay the Contractor the price as provided in this contract.

(b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.

(c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

(d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved breakdown of the contract price. Such estimates shall be submitted not later than days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

(e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made:
   I hereby certify, to the best of my knowledge and belief, that:
   (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
   (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
   (3) This request for progress payments does not include any

amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

_____

Name:

_____

Title:

_____

Date:

_____

(f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.

(g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments. Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

(h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.

(i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.

(j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.

(k) The PHA shall not (1) determine or adjust any claims for payment or disputes arising thereunder between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

**28. Contract Modifications**

(a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.

(b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

(c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

**29. Changes**

(a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
(1) In the specifications (including drawings and designs);
(2) In the method or manner of performance of the work;
(3) PHA-furnished facilities, equipment, materials, services, or site; or,
(4) Directing the acceleration in the performance of the work.

(b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer

written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

(1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs - when size of change warrants revision.

(2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.

(3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change.

The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.

(g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.

(h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.

(i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled **Disputes** herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.

(j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

**30. Suspension of Work**

(a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

**31. Disputes**

(a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the

adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(b) Except for disputes arising under the clauses entitled ***Labor Standards and Labor Standards- Nonroutine Maintenance***, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.

(c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.

(d) The Contracting Officer shall, within 60 unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.

(e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.

(f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

**32. Default**

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

(b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the ***Disputes*** clause of this contract.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

**33. Liquidated Damages**

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled ***Default*** of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of $ [Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.

(b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the PHA in completing the work.

(c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

**34. Termination for Convenience**

(a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.

(b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefor; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.

(c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.

(d) Any disputes with regard to this clause are expressly made subject to the provisions of the ***Disputes*** clause of this contract.

**35. Assignment of Contract**

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

**36. Insurance**

(a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

(1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.

(2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than **$**[Contracting Officer insert amount] per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims-made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

(3) Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than **$**__ [Contracting Officer insert amount] per occurrence.

(b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the super-structure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

(c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

**37. Subcontracts**

(a) Definitions. As used in this contract -

(1) **"Subcontract"** means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

(2) **"Subcontractor"** means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

(b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work

under this contract is to be performed.

(c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.

(d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.

(e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

**38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms**

**<The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:**

(a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and

(e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

**39. Equal Employment Opportunity**

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.

(b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

(c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.

(e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the ***Indian Preference*** clause of this contract.

**40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban**

**Development Act of 1968.**

(a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(b) The parties to this contract agree to comply with HUDs regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers representative of the contractors commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractors obligations under 24 CFR part 135.

(f) Noncompliance with HUDs regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

(g) Pursuant to 24 CFR 905.170(b), compliance with Section 3 requirements shall be to the maximum extent consistent with, but not in derogation of compliance with section 7(b) of the Indian Self-Determination and Education Assistance, 25 U.S.C. section 450e(b) when this law is applicable.

**41. Interest of Members of Congress**

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

**42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees**

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

**43. Limitations on Payments made to Influence Certain Federal Financial Transactions**

(a) The Contractor agrees to comply with Section 1352 of title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

**44. Royalties and Patents**

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

**45. Examination and Retention of Contractor's Records**

(a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to

and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the ***Disputes*** clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

**46. Labor Standards - Davis-Bacon and Related Acts**

If the total amount of this contract exceeds $2,000, the Federal labor standards set forth in the clause below shall apply to the construction work to be performed under the contract, except if the construction work has been determined to be "Nonroutine Maintenance" subject to the terms of that clause of this contract.

(a) **Minimum Wages.**

(1) All laborers and mechanics employed or working upon the site of the work (or, under the United States Housing Act of 1937 or under the Housing Act of 1949, in the construction or development of the project) will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(A) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(B) The classification is utilized in the area by the construction industry; and

(C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (b)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under

this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; ***provided***, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) **Withholding of funds.** HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or, under the United States Housing Act of 1937 or under the Housing Act of 1949, in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(c) **Payrolls and basic records**. (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or, under the United States Housing Act of 1937 or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c)(1) of this clause and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.

(iv) The falsification of any of the above certifications

may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under subparagraph (d)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(d) (1) **Apprentices**. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) **Trainees**. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) **Equal employment opportunity.** The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(e) **Compliance with Copeland Act requirements**. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(f) **Contract termination; debarment**. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

(g) **Compliance with Davis-Bacon and related Act requirements**. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

(h) **Disputes concerning labor standards**. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.

(i) **Certification of eligibility.** (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

(j) **Contract Work Hours and Safety Standards Act**. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) **Overtime requirements**. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) **Violation; liability for unpaid wages; liquidated damages**. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.

(3) **Withholding for unpaid wages and liquidated damages**. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.

(k) **Subcontracts**. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

**[ ] 47. Labor Standards-Non-routine Maintenance**

(***If checked***, for contracts exceeding $2,000, HUD has determined that the construction covered by this contract consists of non-routine maintenance (as defined in 24 CFR 968.203) necessary for the operation of the Public or Indian Housing project; and the labor standards set forth below and the provisions of Section 12 of the United States Housing Act of 1937 which pertain to such work shall apply. Clause 47 does not apply to this contract.)

(a) **Minimum Wages**. (1) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Housing and Urban Development which is attached hereto and made a part hereof. Such laborers and mechanics shall be paid the appropriate wage rate on the wage determination for the classification of work actually performed, without regard to skill. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate only when the following criteria have been met:

(A) The work to be performed by the classification required is not performed by a classification in

the wage determination;

(B) The classification is utilized in the area by the industry; and

(C) The proposed wage rate bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) The wage rate determined pursuant to this paragraph shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(b) **Withholding of funds**. The Contracting Officer, upon his or her own action or upon request of HUD shall withhold or cause to be withheld from the Contractor under this contract or any other contract subject to HUD-determined wage rates, with the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor the full amount of wages required by this clause. In the event of failure to pay any laborer or mechanic employed or working on the site of the work all or part of the wages required by the contract, the Contracting Officer or HUD may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, or advance, until such violations have ceased. The PHA or HUD may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

(c) **Payrolls and basic records**.

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

(2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (d)(1) above. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the OMB under OMB control number 1215-0149).

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(A) that the payroll for the payroll period contains the information required to be maintained under subparagraph (c)(1) of this clause and that such information is correct and complete;

(B) that each laborer or mechanic employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and

(C) that each laborer or mechanic has been paid not less than the applicable wage rates for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of compliance" required by subparagraph (c)(2)(ii) of this clause.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or the PHA and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment or denial of participation in HUD's programs pursuant to 24 CFR Part 24.

(d) **Compliance with Copeland Act requirements**. The Contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

(e) **Contract termination; debarment**. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 24 CFR Part 24.

(f) **Disputes concerning labor standards**.

(1) Disputes arising out of the labor standards provisions of paragraphs (a), (b), (c), and (e) of this clause shall be subject to the general disputes clause of this contract.

(2) Disputes arising out of the labor standards provisions of paragraphs (d), and (g) of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this paragraph (f)(2) include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.

(g) **Contract Work Hours and Safety Standards Act**. As used

in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) **Overtime requirements**. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) **Violation; liability for unpaid wages; liquidated damages**. In the event of any violation of the provisions set forth in subparagraph (g)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the provisions set forth in subparagraph (g)(1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (g)(1) of this clause.

(3) **Withholding for unpaid wages and liquidated damages**. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any federal contract with the same prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (g)(2) of this clause.

(h) **Subcontracts**. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the provisions contained in this clause.

### 48. Non-Federal Prevailing Wage Rates

Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever either of the following occurs:

(1) Such non-Federal prevailing wage rate exceeds: (A) the applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 276a et seq) to be prevailing in the locality with respect to such trade; (B) an applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor or a DOL-recognized State Apprenticeship Agency; or (C) an applicable trainee wage rate based thereon specified in a DOL-certified trainee program; or

(2) Such non-Federal prevailing wage rate, exclusive of any fringe benefits, exceeds the applicable wage rate determined by the Secretary of HUD to be prevailing in the locality with respect to such trade or position.