

RIHWX 038M

PROJECT MANUAL

For

ENERGY CONSERVATION MEASURES

At

Church Community Apartments (1 Building) 93 Units

50 Washington Sq. Newport, RI 02840

For

Fifty Square LP

Contractor:

Date:

Owner:

Date:

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American Recovery and Reinvestment Act (ARRA)
Multi-Family Weatherization Assistance Program (WAP)

Fifty Square LP
&
Rhode Island Housing

Specifications for Materials, Installation, and
Mechanical Energy Efficiency Measures

1. GENERAL INFORMATION

A. CONTACT INFORMATION

John Byrne or Stephen Ostiguy
Executive Director
Harbor House Housing LP
50 Washington Square
Newport, RI 02840
John-401-846-1990 jbyrne@phoenix-ri.com
Stephen-401-846-5114 sostiguy@cchcnewport.org

Charles Pytel
Construction Manager
Rhode Island Housing
Providence, RI 02903
401-457-1265
cpytel@rhodeislandhousing.org

B. MANDATORY BID WALK THROUGH FIFTY SQUARE LP:

TUESDAY JANUARY 17, 2012 @ 9:00 AM.
AT: 50 Washington Square, Newport, RI 02840

C. BID DEADLINE

MUST BE RECEIVED BY FRIDAY JANUARY 20, 2012 @ 11:00 AM.

Deliver Sealed Bids to:

Fifty Square LP
50 Washington Square
Newport, RI 02840
Attn: Stephen Ostiguy

AWARD TO BE MADE TO APPROVED LOW BIDDER AT LUMP SUM PRICE

2. BID PACKAGE INSTRUCTIONS:

- A. BIDDER'S ATTENTION IS CALLED TO THE PROJECT MANUAL, INSTRUCTIONS TO BIDDERS, PARTICULARLY AS TO THEIR RESPONSIBILITY TO MAKE INQUIRY, BEFORE SUBMITTING BID, AS TO THE ADDENDA ISSUED
- B. THE BID THAT IS SUBMITTED SHALL CONTAIN:
- Bid, signed – each sheet;
 - Non-collusive affidavit, signed and notarized;
 - Bid Guarantee;
 - Acknowledgment of addendum or addenda.
- C. COMPLETELY FILL OUT, SIGN, AND NOTARIZE BID DOCUMENTS AS REQUIRED BY THEIR FORM AND BY THE INSTRUCTION TO BIDDERS BEFORE SEALING BID ENVELOPE. USE PARAGRAPH B ABOVE AS A CHECK LIST BEFORE SEALING BID ENVELOPE; HOWEVER, BIDDERS SHALL BE RESPONSIBLE FOR COMPLYING WITH INSTRUCTIONS TO BIDDERS FOR CONTRACTS, HEREIN.
- D. SUCCESSFUL BIDDER SHALL PROVIDE, AFTER NOTIFICATION OF AWARD, CERTIFICATES OF WORKER'S COMPENSATION AND PUBLIC LIABILITY INSURANCE, R.I.'S RENOVATION, REPAIR & PAINTING (RRP) LICENSE, PERFORMANCE BOND FOR CONTRACTS IN EXCESS OF \$150,000.00 OR SURETY CHECK FOR 10% OF CONTRACT VALUE.
- E. IN PREPARING BIDS, PAY PARTICULAR ATTENTION TO THE SPECIFICATIONS, GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS HAVING TO DO WITH (SEE PREVAILING WAGES) CONDITIONS OF EMPLOYMENT, MAINTENANCE OF RECORDS AND EQUAL EMPLOYMENT.
- F. BIDDER'S ATTENTION IS CALLED TO THE SPECIFICATIONS, SUPPLEMENTARY CONDITIONS, TIME FOR COMPLETION AND LIQUIDATED DAMAGES.
- G. IT IS IMPORTANT THAT THE BID BE FILLED OUT COMPLETELY. WHEN SEPARATE BID ITEMS OR UNIT PRICES ARE INDICATED, THE BID MUST BE FILLED OUT WITH PRICES FOR EACH BID ITEM OR UNIT PRICE.
- H. IT IS THE RESPONSIBILITY OF THE BIDDERS, REFERRING TO THE TABLE OF CONTENTS AND THE SCHEDULE OR DRAWINGS IN THE SPECIFICATIONS, TO VERIFY THAT ALL PARTS ARE INCLUDED IN THIS BID PACKAGE.

- I. CONFLICTS OR CONFUSION: PRIOR TO BIDDING, THE CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONTRACT DOCUMENTS AND SHALL REQUEST CLARIFICATION IN ALL CASES OF APPARENT CONFLICT OR CONFUSION. IN CASE OF CONFLICT OR CONFUSION WHERE THE CONTRACTOR DID NOT REQUEST CLARIFICATION PRIOR TO BIDDING, THE CONTRACTOR SHALL INTERPRET THE CONTRACT DOCUMENTS TO REQUIRE THE GREATER QUANTITY, HIGHER QUALITY, MOST RESTRICTIVE AND MOST EXPENSIVE OF THE POSSIBLE INTERPRETATIONS.
- J. OWNER RESERVES THE RIGHT TO WITHDRAW ANY AND ALL BIDS AND WAIVE ALL INFORMALITIES. AWARD OF CONTRACT SHALL BE SUBJECT TO AVAILABILITY OF FUNDING.
- K. THE CONTRACTOR SHALL NOT DISCRIMINATE AGAINST ANY EMPLOYEE OR APPLICANT FOR EMPLOYMENT BECAUSE OF RACE, COLOR, RELIGION, SEX, AGE, OR NATIONAL ORIGIN. THE CONTRACTOR SHALL TAKE AFFIRMATIVE ACTION TO ENSURE THAT APPLICANTS ARE EMPLOYED AND EMPLOYEES ARE TREATED DURING EMPLOYMENT, WITHOUT REGARD TO RACE, COLOR, RELIGION, SEX, AGE, OR NATIONAL ORIGIN. SUCH ACTION SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: EMPLOYMENT, UPGRADING, DEMOLITION, OR TRANSFER, RECRUITMENT, OR RECRUITMENT ADVERTISING. LAYOFF OR TERMINATION, RATES OF PAY OR OTHER MEANS OF COMPENSATION, AND SELECTION FOR TRAINING, INCLUDING APPRENTICESHIP.
- L. THE BIDDER WARRANTS THAT HE HAS NOT EMPLOYED ANY PERSON TO SOLICIT OR SECURE THIS CONTRACT UPON ANY AGREEMENT FOR A COMMISSION, PERCENTAGE, BROKERAGE, OR CONTINGENT FEE. BREACH OF THIS WARRANTY SHALL GIVE OWNER THE RIGHT (WITHOUT REPRISAL) TO TERMINATE THE CONTRACT, OR, IN ITS DISCRETION, TO DEDUCT FROM THE CONTRACTOR'S FEE THE AMOUNT OF SUCH COMMISSION, PERCENTAGE, BROKERAGE, OR CONTINGENT FEE.
- M. THE BIDDER SHALL BE SOLELY RESPONSIBLE FOR ALL COSTS INCURRED IN PREPARING AND SUBMITTING A RESPONSE TO THIS RFP. ALL MATERIAL AND DOCUMENTS SUBMITTED BY THE BIDDER WILL BECOME THE PROPERTY OF OWNER AND WILL NOT BE RETURNED. THE FIRM ULTIMATELY SELECTED TO ENTER INTO A CONTRACTUAL AGREEMENT WITH OWNER, WILL BE SOLELY RESPONSIBLE FOR ALL COSTS INCURRED DURING NEGOTIATIONS.
- N. THE CONTRACTOR AGREES TO DEFEND, INDEMNIFY, PROTECT, AND HOLD OWNER AND ITS AGENTS, OFFICERS, EMPLOYEES, AND REPRESENTATIVES HARMLESS FROM AND AGAINST ANY AND ALL

CLAIMS ASSERTED OR LIABILITY ESTABLISHED FOR DAMAGES OR INJURIES TO ANY PERSON OR PROPERTY, INCLUDING INJURY TO THE CONTRACTOR'S EMPLOYEES, AGENTS, OR OFFICERS WHICH ARISE FROM OR ARE CONNECTED WITH OR ARE CAUSED BY OR CLAIMED TO BE CAUSED BY THE ACTS OR OMISSIONS OF THE CONTRACTOR, AND ITS AGENTS, OFFICERS OR EMPLOYEES, IN PERFORMING THE WORK OR SERVICES HEREIN, AND ALL EXPENSES OF INVESTIGATING AND DEFENDING AGAINST THE SAME.

3. GENERAL REQUIREMENTS

- Some of the work requires that the contractor coordinate in process inspections in order to facilitate the final inspection. Inspector and owner must sign your "Statement of Completion Form" to be submitted with certified payroll and request for payment forms before payments are processed.
- Contractor shall comply with all ARRA, Multi-Family Weatherization Assistance Program (WAP) requirements.
- All materials are to be equal to or greater than quality of approved materials.
- All the units will be occupied during weatherization activities. The creation of dust must be contained to the work area in compliance with EPA's Renovating, Repair and Painting (RRP) rule. Licenses are required.
- Contractor shall verify all quantities and dimensions before submitting bids.
- Contractor is responsible for the removal of all trash/construction debris associated with the weatherization activities daily.
- Contractor shall pay prevailing wages in accordance with the U.S. Department of Labor's Davis Bacon Act.
- Bids over \$150,000.00 require a performance bond or surety check for 10% of the contract value.

THE CONTRACTOR SHALL OBTAIN ALL PERMITS TO REPLACE THE EXISTING MECHANICAL HEATING SYSTEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL PERSONNEL UNDER HIS/HER EMPLOYMENT, EQUIPMENT, TOOLS, MATERIALS, AND OTHER ITEMS AND SERVICES NECESSARY TO COMPLETE THE JOB. THIS PROJECT CONSISTS OF REPLACING THE EXISTING MECHANICAL HEATING SYSTEM WITH (2) NEW HIGH EFFICIENT CONDENSING BOILERS WITH PVC SEALED COMBUSTION VENTING. THERE WILL BE NEW PIPING CONFIGURATION AND INSULATION, NEW BOILER STAGING CONTROL WITH OUTDOOR RESET PROGRAMMING REQUIRED. ALSO PROVIDE A SEPARATE INSTALLATION PRICE FOR REPLACING THE CURRENT DOMESTIC WATER HEATER AND TANK TO A HIGH EFFICIENT DOMESTIC SYSTEM AND TANKS. THIS WORK WILL BE PERFORMED IN THE MECHANICAL SPACE

Referenced Program requirements, practices and guidelines excerpted from the following.

US Dept of Energy, Weatherization Assistance Program Guidelines (USDOE WAP)

**Rhode Island State Energy Office
Weatherization Assistance Program
Guidelines for the Installation of Energy Conservation Measures (RI WAP ECM)**

Mass Save Program Standard for Materials, Installation and Conduct for Energy Efficiency Measures Installation Contractors (Mass Save EEM)

4. WORK SCOPE DETAILS

A. SITE SUMMARY

Church Community Apartments

Existing Conditions

The Church Community Apartments were originally constructed in 1910 and contain 55,161 SqFt of conditioned space. The facility has a total of 6 floors, with one floor below grade. The main floor of the structure houses some offices, a small cafeteria, and a lobby. The rest of the building is comprised of 93 apartments in either an efficiency or one bedroom configuration. Some units were designed as handicap units, though there are only a limited number of them.

The facility has in total:	-	
63	-	Efficiency units
7	-	Handicap Efficiency units
23	-	One Bedroom Units
93	-	total units

Natural gas is used for heating and domestic hot water (DHW) production.

The facility was built in the early 1900s with slab-on-grade/below grade construction. The above ground floors are all assumed to be of brick and concrete construction. The exterior of the building is finished in painted white bricks or concrete. The interior finish of each tenant room is painted gypsum board

Church Community utilizes a bank of six (6) boilers to provide heat and one boiler to provide domestic hot water. The bank of six (6) existing boilers consists of atmospheric Hydrotherm natural gas boilers. The boilers are on-off style with a rating of 300,000 BTU/Hr each. The boilers distribute heat to the building through fin tube baseboard located in each tenant's apartment. The temperature in the building is regulated by one central thermostat, which helps to prevent overheating of the apartments. The domestic hot water is generated by a 1,300,000 BTU/Hr A.O. Smith boiler and is stored in a 750 gallon tank.

There is an estimated 2,437 feet of piping that runs along the exterior wall of the facility. Most of this is assumed to be actual baseboard fin tube radiators but there is some area that is assumed to be simple pipe. This simple pipe has been estimated to account for roughly 20% of the total pipe length or 487 feet.

The current domestic hot water (DHW) boiler is a 1,300,000 BTU/Hr A.O. Smith atmospheric boiler. When this boiler was installed, it was only rated for a maximum efficiency of 80%.

The building utilizes two Marathon 1.5 HP pumps to deliver heat to the building. These pumps are estimated to be 5-10 years old and no longer operate at their peak efficiency.

The average flow rate of the aerators in the bathrooms was around 1.62 GPM, which greatly exceeds the .5 GPM standard. In the kitchen, the aerators averaged 1.47 GPM, which is below the 1.5 GPM standard.

The current exit signs in the facility are all light by incandescent bulbs. These bulbs were all estimated to be 25 watts and also assumed that they run for 24 hours per day.

There are (23) Hotpoint side by side refrigerators in the one bedroom units. The Hotpoint units can be replaced with high efficiency options.

Scope of Work

- OBTAIN AND PROVIDE ALL PERMITS AND INSPECTIONS FOR BOILER REPLACEMENT PROJECT
- ISOLATE AND MAKE SAFE EXISTING PULSE BOILERS SYSTEMS AND CONNECTING PIPING SYSTEMS
- DEMOLISH AND REMOVE EXISTING HEATING BOILERS AND CONNECTING PIPING FROM SITE
- DEMOLISH AND REMOVE AND CAP BOILER FLUE SYSTEM TO CEMENT WALL
- CUT AND MAKE SAFE POWER ELECTRICAL CONNECTED TO EXISTING BOILERS
- REMOVE EXISTING VENTILATION DUCTS ATTACHED TO OUTSIDE WALL AND SEAL OPENING
- DISCONNECT AND REMOVE ALL EXISTING DOMESTIC HEAT EXCHANGER, AND CONTROLS
- INSTALL **(2) NEW HIGH EFFICIENCY LOCHINVAR KNIGHT 801 CONDENSING GAS BOILERS**
- INSTALL **(1) NEW LOCHINVAR SHIELD SNA500-125** SERIES WATER HEATER
- INSTALL NEW CONNECTING PIPING IN A PRIMARY/SECONDARY CONFIGURATION AS RECOMMENDED BY MANUFACTURER
- ADHERE TO PIPE SIZING AND FLOW RATE SPECIFICATION FOR APPROPRIATE BOILER MODEL
- RE PIPE THE EXISTING GAS PIPING TO NEW BOILERS
- INSTALL NEW COMBUSTION AIR PVC VENTING THROUGH EXISTING OPENING IN BOILER ROOM
- INSTALL ALL NEW BOILER PIPING WITH 2" FIBERGLASS INSULATION
- PROVIDE NEW POWER WIRING TO ALL DEVICES AND EQUIPMENT
- INSTALL NEW CONTROL WIRING FOR PROPER RUNNING OPERATION
- PROVIDE ALL LABELS AND MARKERS ON ALL PIPING AND EQUIPMENT
- INSTALL CARBON MONOXIDE DETECTOR IN MECHANICAL ROOM WITH AUDIBLE ALARM
- LEAK CHECK AND PRESSURE TEST ALL SYSTEMS BEFORE TURN OVER
- PROVIDE CONTACT SERVICE INFORMATION AND WARRANTY FORMS
- TEST AND VERIFY OPERATION OF NEW BOILER SYSTEM
- PROVIDE TRAINING AND PROGRAMMING METHODS WITH NEW EQUIPMENT TO MANAGEMENT

B. DETAILED SCOPE OF WORK

ENERGY CONSERVATION MEASURES (ECM's)

ECM # 1 Boilers

- Furnish and install packaged sealed combustion direct vent high efficient gas fired boiler with heat exchangers that use outside air for combustion as specified in attached schedule. The boiler shall be capable of full modulation firing down to 20% of rated input with a turn down ratio of 5:1. Install packaged boiler units according to manufactures installation instructions. All work to be done in a neat and workmanlike manner
- The heat exchanger shall be certified and stamped for 160PSI. The boiler heat exchanger shall meet the National Board Listed. There shall be no banding material, bolts, gaskets or o-rings in the header configuration. The heater is removable from the cabinet without removing the entire boiler. The Heat exchanger shall have method of draining condensate from the boiler section, eliminating puddle ling of water inside the heat exchanger. The complete Heat Exchanger shall have a 10 year warrantee.
- The boiler shall be certified and listed by UL and CSA under the latest edition the Harmonized ANSIZ21.12 test standard in US and Canada. The boiler shall comply with the energy efficiency requirements of the latest edition of ASHREA 90.1 103 standard. The boiler shall operate at a minimum 94% thermal efficiency. The boiler shall be suited for indoor installation
- The boiler will be constructed with a heavy gauge jacket assembly, primed and pre painted on both sides. The boiler jacket shall afford easy access to all components. The combustion chamber shall be independently sealed and completely enclosed, independent of the outer jacket. A burner observation port shall be provided. The boiler shall be provided with a gas valve designed with negative pressure regulation and equipped with a variable speed blower system to precisely control the modulating boiler firing rates at maximum efficiency. The boiler shall operate in a safe condition at a de-rated output with gas supply pressure as low as 4 inches of water column.
- The control cabinet shall be equipped with 2 screw terminal strips. One terminal strip is designed for low voltage connections. The other strip is for power

connections, and central heat alarm/system pump operation. Two additional electrical connections are provided internal to the boiler cabinet for the connection of the optional high and low gas pressure switches and UL approved low water cut off switch.

- The boiler shall use a 24 volt control circuit and components. The control system shall have an LCD control interface panel to display boiler set up and diagnostics. All components shall be easily accessible from the front of the unit. The boiler will be supplied temperature/pressure gauge (field installed) High limit temperature control and manual reset, ASME certified pressure relief valve, outlet water temperature sensor, and built in freeze protection. The manufacturer shall verify the proper operation of the burner, control, safety devices, and the heat exchanger by connection to water and venting for factory fire test prior to shipping.
- The boiler will be equipped with a condensate collection system with an internal float switch to protect the boiler from condensate backing up into the heat exchanger
- The boiler shall be installed and vented with a direct vent system with a vertical termination of both vent and combustion intake. The flue shall be category 1V approved stainless connections with PVC, OR CPVC material terminating as per manufacturer's recommendations.
- In Accordance with a vote of the awarding authority, it has been determined that it is in the public interest that the boiler(s) shall be **Lochinvar Knight style KBN--801** packaged boiler system capable of burning natural gas.
- Install **Lochinvar SHIELD SNA500-125** domestic water heater
- After installation and connection, boiler shall be thoroughly cleaned internally following the manner described in manufacturer's installation manual.
- The process of cleaning the boiler shall be repeated as often as necessary and as directed to ensure that all mill scale, rust, dirt, and cutting oils and debris have been removed.

Boiler Accessories: A detailed list of all components will be submitted for approval prior to starting the Boiler Replacement Project.

Electrical and Controls:

- ALL POWER WIRING WITH THE REMOVAL AND THE REPLACEMENT WILL BE DONE BY LICENSED ELECTRICIAN.
- NEW POWER ISOLATION SWITCHES AND GROUNDING WILL BE INSTALLED AS PER NEC
- NEW CIRCULATOR PUMPS AND BOILER CONTROLS WILL BE WIRE IN MC OR EMT PIPE. .
- ALL WORK SHALL INCLUDE REMOVE ANY ABANDONED CONDUITS WITH REMOVAL OF EXISTING SYSTEMS.

Start up and operational sequence:

- PRIOR TO COMPLETION OF THE NEW BOILER SYSTEM , THE FACTORY REPRESENTATIVE SHALL BE NOTIFIED 5 DAYS PRIOR TO START UP OF THE NEW EQUIPMENT FOR A TECHNICIAN TO BE AVAILABLE TO PERFORM A COMPLETE EVALUATION AND WARRANTEE START UP OF SYSTEM.
- ANY DEFECTS OF INSTALLATION AS INDICATED BY MANUFACTURES REP WILL BE ADDRESSED AND COMPLETED AT NO COST TO THE OWNER OR OWNERS REPRESENTATIVE

Operational Sequence:

- THE HOT WATER SYSTEM SHALL BE PIPED FOR A PRIMARY AND SECONDARY LOOP. THE EXISTING BUILDING HEATING PUMPS SHALL RUN CONTINUOUSLY. THE PUMPS WILL NOT OPERATE ABOVE OUTSIDE AIR OF 65°F OUTSIDE AIR TEMPERATURE. A HEATING BOILER OUTDOOR RESET SCHEDULE WILL BE PROGRAMMED INTO BOILER CONTROLLER
- BOILER WATER TEMPERATURE RESET CONTROLLER WILL MODULATE THE BOILERS AND THE HEATING WATER SET POINT BY TRACK OUTDOOR TEMPERATURE AIR CONDITIONS, ENABLING HIGHER EFFICIENCY TO BE REALIZED AS THE WEATHER CHANGES.
- THE DOMESTIC 120 GAL WATER BOILER WILL HAVE INDEPENDENT CONTROL
- FINAL TEST REPORTS AND WARRANTEE INFORMATION WITH SERVICE CONTACT NUMBERS SHALL BE SUBMITTED TO PROJECT MANAGER FOR RECORD.

Warrantee

- ALL MATERIAL AND LABOR WILL BE WARRANTED FOR 1 FULL YEAR FROM STARTUP. ADDITIONAL 9 YEAR FACTORY WARRANTEE ON HEAT EXCHANGER. WARRANTEE FORMS WILL BE PROVIDED TO OWNER'S REPRESENTATIVE.

5. Approved Work Methods

American Recovery and Reinvestment Act (ARRA) Multi-Family Weatherization Assistance Program (WAP) Rhode Island Housing

CONTRACTORS must also provide proof of any certifications or other recognitions required by RIH. This may include but not be limited to BPI Certification, Lead safety training, and asbestos safety training.

MATERIALS

- A. All materials supplied must meet applicable codes and specifications.
- B. Material substitutions are not allowed without a written pre-approval by RIH.
- C. CONTRACTORS will keep a MSDS on the job site for every material used.

PERFORMANCE OF WORK

- A. All labor to be performed in a workmanlike manner.
- B. All work must be performed in a lead-safe manner according to all State and/or Federal Requirements in force at the time of the work
- C. All work must be performed in conformance with all applicable OSHA requirements and other governmental standards.
- D. All measures installed must be in conformance with the Referenced Work Order.
- E. Pre-Approved written Change Orders by a RIH employee or representative are required before any modifications to the original Work Scope are made. If the RIH representative is unreachable, the contractor should use their best professional judgment to make changes to scope of work, recognizing that final approval for payment lie with RIH.
- F. CONTRACTORS are required to make acceptable repairs for accidental damages made to a customer's property at the contractor's expense. Inform RIH immediately upon any incident so proper guidance may be given.
- G. CONTRACTORS will treat occupants in a respectful and professional manner.

JOBSITE CLEAN UP

- A. CONTRACTOR responsible to remove all construction debris from the jobsite.
- B. CONTRACTOR responsible to restore every jobsite to its pre-work condition at project completion.

DOCUMENTATION

- A. After Work Completion - CONTRACTORS must submit documentation (signed by RIH or representative) that the approved Scope of Work is complete.
- B. The Completion document must include:
- C. An itemized confirmation that the Program Audit recommendations were addressed.
- D. An itemized list of each measure, area, R-value, etc, installed.
- E. Document that post -blower door testing and post-combustion safety testing has been performed. Combustion safety testing to be performed by CONTRACTOR or RIH designee.

COMMUNICATIONS

A. CONTRACTOR communications with Fifty Square LP and occupants:

1. CONTRACTOR will be courteous to occupants at all times.
2. Fifty Square LP and occupants must be notified as soon as possible if an appointment must be rescheduled.
3. CONTRACTOR will clearly explain all work procedures and items to be installed to the occupants' residence before and during the work process.
4. CONTRACTORS will answer all Occupant questions in an honest and straightforward manner. If the CONTRACTOR does not know the answer to a question they will refer the CUSTOMER to RIH for an answer.
5. CONTRACTOR will inform Occupant of any fragile items in the work area (mostly related to access) and request that the CUSTOMER move those items to a safe location prior to start of work.
6. CONTRACTOR will ask Occupants for permission to use a household restroom.
7. CONTRACTOR will keep RIH and Occupants informed regarding estimated daily arrival, break, and departure times.
8. CONTRACTOR will document any problems and unusual situations as they occur.

B. CONTRACTOR communications with Fifty Square LP.

1. CONTRACTOR will respond promptly and accurately to Fifty Square LP.
2. CONTRACTOR will document problems and unusual situations and promptly report those to Fifty Square LP.
3. CONTRACTOR will respond promptly to address problems as they occur.

C. CONTRACTOR ACTIONS REQUIRING Fifty Square LP RESPONSE

1. Theft
2. Theft may result in immediate cancellation or suspension of CONTRACTOR and full legal remedies including but not limited to prosecution. Theft includes but is not limited to:
3. Charging for materials not installed or labor not incurred.
4. Inflating the actual cost for services provided.
5. Unauthorized removal of client personal property.

OTHER UNACCEPTABLE ACTIONS

- A. The following CONTRACTOR actions, as examples but not limited to, may result in immediate cancellation or suspension as a RIH CONTRACTOR. Additional training may be required before reinstatement as a RIH CONTRACTOR.
- B. Unauthorized charging for services outside of this work scope while job is open (one year period).
- C. Providing false information to RIH or Fifty Square LP concerning work requirements.
- D. Failure to correct job deficiencies.
- E. Use of inferior or materials.
- F. Repeatedly missing timelines.
- G. Repeatedly performing work of poor quality.

CONTRACTOR'S INSURANCE

- A. All RIH CONTRACTOR shall:
- B. Provide insurance at the coverage amounts listed below with respect to the work they perform for RIH.
- C. Maintain this insurance at their own expense and in full force and effect for the full term of the contract.

- D. List Rhode Island Housing as —"additionally insured" on insurance certificates.
- E. All policies shall be issued by companies authorized to write that type of insurance in the State of Rhode Island.
- F. CONTRACTORS shall provide minimum coverage with respect to the operations performed by any employee, subcontractor or supplier:
- G. Workers Compensation: \$500,000
- H. General Liability: \$1,000,000
- I. Automobile: \$1,000,000
- J. Excess Liability = \$1,000,000 Each Occurrence or Aggregate
- K. CONTRACTOR shall maintain a copy of its Health and Safety Policy, and train all employees accordingly. They shall supply Material Safety Data Sheets (MSDS) for products and materials used by their crews and have these documents available on all jobsites.
- L. Adherence to worker health and safety and applicable OSHA standards are required for all jobs performed by CONTRACTOR their employee's, associated workers, and all SUB-CONTRACTORS.
- M. CONTRACTOR shall ensure lead-safe work practices in compliance with applicable Rhode Island requirements.
- N. CONTRACTOR shall fully document and communicate all problems and concerns to Fifty Square LP.

MATERIALS

A. IMPERMEABLE AIR BARRIER MATERIALS

1. Materials must be durable, and restrict airflow through the material to no greater than 0.004 CFM₇₅ per square foot as tested in accordance with ASTM E283 or E2178. Such materials include:
2. Plywood,
3. OSB,
4. ½" gypsum board,
5. Rigid closed cell foam boards meeting ASTM C578 and ICC ES AC12,
6. Rigid fiberglass board with flame spread 25 FSK facing,
7. Sheet metal flashing and aluminum coil stock,
8. Foil faced bubble wrap,
9. Peel-and-stick flashing membranes,
10. Other air barrier materials as listed in Canada Mortgage and Housing Corporation Research Highlights Technical Series 98-109, "Air Permeance of Building Materials" (<http://www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98109.htm>)
11. Spray applied foams that meet ICC ES AC 377 including:
12. 2-part open cell polyurethane foam (0.5pcf),
13. 2-part medium density closed cell spray polyurethane foam (2.0pcf)

SEALANTS

- A. All caulking materials must be rated for a minimum 20-year life. Acceptable sealants used to join materials and block airflow include:
- B. Foam sealants that meet ICC ES 377 and ASTM C1642-07 such as:
- C. 1-part urethane foam, low CFC (e.g. Great stuff, Pur-fil, Insta-foam, or equivalent)
- D. 1-part urethane fire-block foam rated for sealing gaps in wood fire blocking
- E. 2-part urethane foam kits 1.75pcf density, 2-part Flame Spread 25 foam kits 1.75pcf,
- F. Siliconized latex sealants meeting ASTM C834,
- G. Silicone, 1-part gun grade urethane and other elastomeric sealants meeting ASTM C 920, (—Siliconell refers to 100% silicone caulk, clear or pigmented—not acrylic)
- H. Water based duct sealant meeting UL 181A-M, UL 181B-M ("RCD #6" or equivalent)

- I. Sealants rated for contact with chimneys and combustion vents such as:
- J. Non-combustible fire barrier caulk or furnace cement meeting ASTM E 136
- K. Silicone high temp RTV listed for use on gas vents to 500degrees F, meeting ASTM C920

EXHAUST SYSTEMS

- A. All existing —flex duct|| dryer and bath fan lines to be replaced with insulated hard pipe vented to the outside. Air shall not be vented into an attic, soffit, or ridge vent. Bath and dryer fans shall be separate lines. The intent is to upgrade all vents within the air sealing work-scope.
- B. Exhaust duct terminations shall be equipped with a back draft damper and bird screen.
- C. Exhaust ducts shall be constructed with a minimum of .016|| (.4mm) rigid metal ducts having smooth interior surfaces with joints running in the direction of air flow.
- D. CONTRACTOR to insulate ducts to a minimum of R6. Existing attic insulation will not satisfy this requirement.
- E. CONTRACTOR to use Hard Piped Insulated duct 4 and 6 inch diameter for bath exhaust and dryer fans

INSULATION MATERIALS

- A. Cellulose (blown-in) loose fill insulation meeting ASTM C739, 16 CFR 1209, 1404,
- B. Specific Cellulose ICC ES reports required for fire rated details (e.g. ESR-1996 US Greenfiber, ESR-2217 NuWool),
- C. Mineral fiber batt and blanket insulation meeting ASTM 665,
- D. Mineral fiber (blown-in) loose fill insulation meeting ASTM C764,
- E. Fiberglass wool engineered for resisting airflow to less than 3.5cfm/sq ft @50pa, and tested to ASTM C522 (e.g. JM Spider, Knauf Perimeter Plus)
- F. Rigid closed cell foam boards meeting ASTM C578, ICC ES AC12,
- G. Specific foam board ICC ES reports required for uncovered use (e.g. NER-681 Thermax, ESR 2142 Dow XPS),
- H. Rigid Fiberglass faced insulation boards meeting ASTM C553, C612, and C 1136 for facing

AIRSEALING

- A. Installation of air sealing materials shall follow applicable Rhode Island Building Code(s) and manufacturers' instructions.
 - 1. Performance Criteria
 - a. CONTRACTORS will clearly define where the pressure and thermal boundaries of the home are to be, and insure that access hatches, framing voids and chimney, plumbing and wiring chases between the conditioned space and unconditioned attics, knee walls and other buffer zones are tightly sealed.
 - b. Air sealing measures at all openings between intact building materials shall be continuous, durable, able to support all expected loads, and impermeable to airflow as indicated by chemical smoke at a pressure difference of 50 Pascals.
 - 2. Conditions for Materials Use
 - a. Air impermeable barrier materials and sealants shall be used within their listing and installed in conformance with all applicable codes and manufacturer’s recommendations.
 - b. Sealant materials applied to exposed joints in interior or exterior finish shall meet all performance requirements, blend in with adjacent materials, and be acceptable to the owner.
 - c. Backing shall be provided for any sealant installed in gaps wider than 3/8|| whether exposed or covered and all joints shall be tooled.
 - d. Rigid barriers shall be cut to friction fit openings with gaps not more than 1” for foam sealant and extra material on edges for fasteners.
 - e. Support shall be provided to prevent sagging.
 - f. Larger enclosures of rigid foam or fiberglass board barrier material for pipes, whole house fans, or fold

down stairs shall be fastened and sealed at all edges with weather-strip provided at operable joints and edges sealed to the substrate where fixed. .

g. Only non-combustible rigid barriers such as sheet metal or cement board

shall be used to bridge the clearance space to heat sources such as chimneys and metal combustion vents.

h. Only non-combustible sealants such as furnace cement or E 136 rated caulk shall contact solid fuel chimneys or oil vents; for gas vents high temp (500 F, 600F) silicone RTV approved for gas vents may be used to seal the gap between the rigid barrier and heat source.

i. In addition to the airtight non-combustible barrier and seal at the opening, a clearance dam is required to maintain 3" or greater clearance around the chimney or vent for the full height of the insulation. Unfaced mineral fiber meets this criteria but a folded metal collar 2-4" taller than the final height of the insulation, folded into the vent to close the top space and fastened at the bottom and vertical seam is recommended.

j. 1 part sealant foam is listed for sealing gaps and annular spaces around penetrations of up to 1-5/16" in width and 1.5" full depth of wood plate for fire stop. *Fire stop foam is combustible and not allowed for use in contact with heat sources.*

k. 2-part sealant foam requires backing for openings from 2" to 4" wide and infill of rigid barrier material for openings wider than 4"

l. Insulation must be kept 3" or more away from the sides of a non-IC rated recessed light fixture including any wiring box or ballast and no insulation is allowed above.

m. If an air tight box is installed to limit air leakage, it shall be sized for clearance from the fixture, taller than the adjacent insulation and with a non-insulating moisture permeable top of gypsum board or equivalent material.

n. If access does not allow installation of the box, 3" clearance from insulation is still required with no insulation allowed above.

o. The gap between the fixture and ceiling may be sealed with silicone or joint compound.

p. For air tightness and insulation continuity, replacement with an airtight IC rated fixture or infill of the opening and replacement with a flush mount fixture are preferred alternates.

q. Dimensional limits:

r. Siliconized acrylic shall not be used in openings or cracks over 3/16" without a backer, and generally should not be used in openings or cracks more than 3/8".

s. Pure silicone shall not be used in openings or cracks over 3/8" without a backer, and generally should not be used in openings or cracks more than 1/2".

t. Foam shall not be used to span gaps or openings more than 1 1/2" without a backer material.

u. Foam sealant will not be used where exposed to sunlight or other ultraviolet sources. It will not be used near any heat producing device.

TYPICAL AIR SEALING LOCATIONS

A. In every specified work area: locate, uncover and seal all building air leakage pathways between conditioned and unconditioned areas. Extra hours were allocated on individual work scope for moving blown in cellulose and then placing it back again after air sealing.

B. These areas can include accessible attics, side attics, crawlspaces, unconditioned basements, attached garages, and leakage from basement to outside; gaps, penetrations and fixture openings that allow interior air into inaccessible roofs, slants and outside wall cavities; and major direct openings between conditioned space and outside.

C. Basements are typically semi-conditioned spaces in all 20 buildings.

D. Common air leakage details include but are not limited to:

E. Dropped soffits, dropped ceilings and ceiling height changes

F. Plumbing wet walls, duct chases, duct seams, joints and boot leaks

G. Dryer and bath vent chases

- H. Openings behind and under tubs, showers, and tub/shower enclosures
- I. Wall tops open into attic, gaps between gypsum ceiling and wall plates
- J. Annular space at wiring, pipe penetrations through plates, and at ceiling fixtures
- K. Floors open under knee walls, walls open at level changes and gable ends. Enclosed knee walls to be accessed and air sealed on as needed basis. It may be determined by blower (if reasonable CFM reduction cannot be achieved) that enclosed knee walls need to be air sealed.
- L. 2nd story floors open to attached roofs over porches and additions or garages
- M. Inside framing open into attic stairs and landings,
- N. Non-IC recessed light fixtures. IC rated fixtures with no airtight insert
- O. Bath and kitchen fans venting into the attic
- P. All joints seams and penetrations in surfaces without an air retarding membrane

QUALITY ASSURANCE

A. Quality Assurance (In-field Quality Assurance Inspections)

1. RIH has the goal of performing on-site in-process and post installation quality assurance inspections where measures have been installed.
2. Customer Discussion
3. Visual Inspections and Diagnostic Tests (blower door)
4. Inspection Documentation
5. Any issues identified during on-site inspections will need to be successfully addressed prior to
6. Contractor payment.

APPLICATION GUIDANCE

This section offers general information about materials and installation procedures.

A. Caulks and Sealants

1. Locations and use of caulks and sealants are governed by cost-effectiveness standards and procedures. The proper caulk will be matched to the location where it is applied. Consideration will be given to durability, paintability, adherence, color, toxicity, flammability, etc.
 - a. **Siliconized acrylics** will generally only be used in interior locations or where paintability is important. When used in visible areas, customer must approve the application, and see a sample before continuing. Clear acrylics, due to their shiny appearance, must be used only where appropriate, and should be approved by the customer prior to use in visible areas. Clear acrylics should be avoided where possible due to greater shrinkage.
 - b. **Pure silicone** will generally be used in exterior applications, unless paintability is needed. Pure silicone will be used anywhere that sealants are needed between wood and metal, wood and concrete, or other materials with differential expansion as moisture and temperature vary, or where greater flexibility is needed.
2. Caulking is performed on the interior of the dwelling for general air leakage and to prevent moisture penetration into wall cavities. Generally, interior air sealing is done after all other major air sealing is complete and on an as needed basis.
3. Caulking is performed on the exterior of the dwelling to prevent bulk moisture from entering the envelope of the building and to seal areas of air leakage.
4. When appropriate, windows will be caulked along the full perimeter of the interior (or exterior), including sill area, side stops, apron, and casings.
5. When appropriate, doors will be caulked along the interior (or exterior) casings and door jambs/stops.

B. Weather-stripping application

1. All weather-stripping will be permanently installed with fasteners (tacks, staples, brads, etc.) and will make positive contact between surfaces to prevent air leakage.
2. The weather-stripping will form an air tight seal when the window is closed and latched. A small bead of caulk will be applied as necessary to prevent air leakage behind the weather-stripping

- 3. The weather-stripping will not interfere with the smooth operation of the door or window.
- 4. Attic hatch or scuttle openings
- C. Weather-stripping will be permanently affixed to hatch or framing. Generally —Q-lon with carrier|| or equivalent is preferred.
- D. A positive closing mechanism will be installed on the hatch if needed.
- E. Existing access to the attic will be maintained.
- F. In the case of drop down folding stairs, an air tight, insulated cap will be built over the opening.
- G. Kneewall access doors will be treated like attic hatch doors whenever possible.

RECOMMENDED MEASURES SUMMARY

- A. Air Sealing (infiltration reduction)
- B. Insulation (ECM)

CONTRACTOR QUALIFICATIONS AND RESPONSIBILITIES

- A. Contractors must have all licenses and registrations required for their area of work by the applicable State agency. Appropriate documentation must be supplied to RIH upon request.
- B. The term “Contractor” as used in this document applies to any individual or company performing covered work that is being performed for Rhode Island Housing and Fifty Square LP. This applies equally to vendors working directly for RIH and to independent sub-contractors doing work indirectly for RIH.
- C. The purpose of these guidelines and associated information is to establish a standard for workmanship.

APPENDIX A – ADDITIONAL INFORMATION

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APPENDIX B - FORMS

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FORM OF NON-COLLUSIVE AFFIDAVIT

(Prime Bidder)

State of

Country of

_____, being first duly sworn, deposes and says:

That he/she is _____ (partner or officer) of the firm of _____, the party making the foregoing proposal or bid, that such proposal or bid is genuine and not collusive or sham, that said bidder has not colluded, conspired connived or agreed, directly or indirectly with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price or affidavit or any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against Fifty Square LP & Rhode Island Housing or any person interested in the proposed contract; and that all statements in said proposal or bid are true.

Signatures:

Bidder, if the bidder is an individual;
Partner, if the bidder is a partnership;
Officer, if the bidder is a corporation;

Subscribed and sworn to before me

This _____ day of _____, 20__

Notary:

Printed Name:

My commission expires _____, 20__.

CONTRACTOR QUALIFICATION STATEMENT

AIA Document A305 – Contractor's Qualification Statement, 1986 Edition shall be an integral part of the Bid Documents for use in evaluating the qualifications of Contractors. (If needed)

OR

PRESENTLY APPROVED BY: STATE OF RHODE ISLAND ENERGY OFFICE

BID FORMS

1. FORM OF BID

MECHANICAL IMPROVEMENTS INVOLVING BOILER REPLACEMENT AT Church Community Apartments Newport, RI.

**TO: Fifty Square LP
50 Washington Square
Newport, RI 02840
Attn: Stephen Ostiguy**

1. The undersigned, having familiarized themselves with the local conditions affecting the cost of work, and with the Project Manual including Invitation for Bids, Instruction to Bidders, this Bid, the Form of Contract and the Form of Performance, the General Conditions, the Supplementary Conditions, the General Scope of Work, the Technical Specifications and Addenda, if any, thereto as prepared by Rise Engineering and on file in the offices of Rhode Island Housing in the City of Providence, Rhode Island, hereby proposes to furnish all labor, materials, equipment and services required at the prices stated below:

a. Bidder acknowledges receipts of the following Addenda (dated):

_____	_____
_____	_____
_____	_____

BASE BID

Contractor: _____

Date: _____

These prices are valid through: _____

ECM # 1 BOILER REPLACEMENT PROJECT AS OUTLINED Price =\$ _____

ADDITIONAL/ALTERNATE:
DOMESTIC HEATER REPLACEMENT WITH NEW STORAGE TANKS WITH PUMPS AND CONTROLS Price =\$ _____

Total Value All ECM's listed above Price =\$ _____

- Payment and performance bonds.....Price = \$ _____
- Permits and fees.....Price = \$ _____

Grand TotalPrice = \$ _____

Please check:

The prices shown were calculated using the Davis-Bacon wage rates provided. Yes No

The prices shown include compliance with RI Housing's insurance requirements. Yes No

Contractor acknowledges receipt of addenda numbered: 1, 2, 3, 4, 5

2. If this Bid is accepted, we will achieve Substantial Completion of the work in forty (40) consecutive calendar days from Owner's Notice to Proceed. Final completion shall be twenty (20) consecutive calendar days, thereafter. Total contract time shall not exceed sixty (60) consecutive calendar days.

Liquidated Damages, In as much as Time is of the Essence:

If Contractor fails to achieve certification of Substantial Completion at the expiration of the agreed upon Contract Time indicated above, Contractor acknowledges they will be assessed Liquidated Damages for each calendar day the project continues to be in default of Substantial Completion as follows:

\$400.00 per calendar day

3. In submitting this Bid, it is understood that the right is reserved by Fifty Square LP & Rhode Island Housing to reject any and all Bids. If written notice of the acceptance of this Bid is mailed, telegraphed or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver a contract in the prescribed form and furnish within ten (10) days after the contract is presented to him for signature.
4. Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to the proposal or any other proposal or the submitting of proposals for the contract for which this proposal is submitted.
5. The Bidder represents that they have not participated in a previous contract or subcontract subject to the equal opportunity clauses prescribed by Executive Order 10925, 11114, 11246, or the Secretary of Labor; that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts which are exempt from this clause.)
6. He/she further agrees that (except where he/she has obtained identical certification from proposed subcontractors for specific time periods) he/she will obtain identical certification from proposed subcontractor prior to the award of subcontracts exceeding \$10,000, which are not exempt from the provisions of the Equal Opportunity Clause; that he/she will retain such certification in his/her file; and that he/she will forward a notice to his/her proposed subcontractors as provided in the instruction to bidders.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Bidder Printed Name:

Bidder Title:

Bidder Company Name:

Official Address:

Bidder Signature:

Date: _____, 2011

Attachments/Exhibits

Attachment A –

Attachment B –

US Dept of Energy, Weatherization Assistance Program Technical Manual

Attachment C -

Mass Save Program Standard

For Materials, Installation and Conduct for

Energy Efficiency Measures Installation Contractors (Mass Save EEM)