

# Specification Listing

## Retrofit Challenge

		UoM	Total Unit Cost
<b>Site Work (4)</b>			
400	rc POOL COVER : (1 time) Install pool cover	EA	\$0.00
414	rc DROUGHT TOLERANT PLANTINGS : (1 time) Plant drought-tolerant shade trees near east and west-facing windows (Deciduous trees in North Florida).	EA	\$0.00
466	rc FOUNDATION AND WALL PROTECTION : (1 time) Remove moisture loading at walls and foundation (e.g. irrigation system, roof runoff, soil contact).	EA	\$0.00
<b>Carpentry (10)</b>			
2563	rc SIDING--REPAIR AND REPLACE : (1 time) When any siding is removed for repair or replacement check for and replace rotted materials. Install and integrate continuous drainage plane with window and door flashing in accordance with manufacturer's recommendations.	EA	\$0.00
2766	rc INSTALL ENERGY STAR CERTIFIED WINDOW : (1 time) Check for and replace any rotted materials around window (e.g. studs, sheathing).  Install, at minimum, ENERGY STAR Version 5, Southern Climate approved-labeled window (U-value 0.6 or lower and solar heat gain coefficient (SHGC) 0.27 or lower).  Ensure proper window flashing installation.  If installing house wrap, follow manufacturer instructions for cutting and wrapping at window openings.  Air seal between window frame and rough opening with a sealant designed for windows.  Retain National Fenestration Rating Council (NFRC) label to provide project manager proof of window performance specification, including SHGC and U-value.	EA	\$0.00
2796	rc WINDOW FRAME REPAIR : (1 time) Replace rotted materials around window (e.g. rough opening, sheathing).  Replace missing head flashing at wood siding.  Caulk edges of window frame/trim on both interior and exterior.	EA	\$0.00
2797	rc APPLY WINDOW FILM : (1 time) For existing clear windows not being replaced, apply window tint to achieve combined (glass + tint) SHGC =< 0.5 and preferably visible transmittance => 0.5. For windows with active warranties, check with manufacturer before installing.	EA	\$0.00
<b>Roofing (15)</b>			
4489	rc RADIANT BARRIER ROOF SHEATHING : (1 time) Install pre-laminated radiant barrier roof sheathing per local code. Reference roofing manufacturer specifications to assure no void in warrantee.	SF	\$1.05
4582	rc REROOF WITH LIGHT OR WHITE SHINLGES : (1 time) Install, to local code, asphalt shingles that are white or light colored (Solar Reflectance => 0.25).	EA	\$0.00
4583	rc REROOF INSTALL DRIP EDGE : (1 time) Provide drip edge at eaves and gables of shingle roofs. Overlap drip edge seams a minimum of 3". Drip edge shall extend a minimum of 1/2" below sheathing and extend back on the roof a minimum of 2". If drip edge is installed over underlayment there shall be a minimum 4" width of roof cement installed over the drip edge flange. Drip edge will be mechanically fastened per local code.	LF	\$0.00

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## Retrofit Challenge

4584	rc REROOF FLASHING INSTALLATION : (1 time)	EA	\$0.00
Install step and kick-out flashing at all roof-wall intersections, extending => 4" on wall surface above roof deck and integrated shingle-style with wall drainage plane above. Install boot / collar flashing at all roof penetrations. Install self-sealing bituminous membrane or equivalent at all valleys & roof deck penetrations.			

### Conservation (16)

		UoM	Total Unit Cost
4803	rc WEATHERIZATION WHEN GAS EQUIPMENT IS PRESENT : (2 times)	AL	\$0.00
For gas appliances, both new installations and current equipment intended to remain in place post retrofit, ensure specifications, implementation and installation details are in compliance with 2010 Florida Building Code Residential Chapter 24 Section G2407 (2009 International Fuel Gas Code Chapter 3 Section 304) for indoor and outdoor combustion air and make-up air. Add permanent openings to the building as needed for compliance as specified in Section G2407.6 (304.6). Additionally, take these steps:			

During retrofit: Disable combustion furnaces and water heaters unless a plan has been executed specifically to ensure combustion safety. If combustion appliances exist and are being replaced with non-combustion appliances, disable appliances and remove from premises prior to retrofit.

Work with a home professional that is BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space before, during, and after renovation. Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.

Conduct post-renovation testing to verify that no air pressure conditions have been created that jeopardize either combustion air supply or exhaust or that would result in combustion exhaust gases entering the conditioned space.

Install carbon monoxide (CO) detectors and post an action plan near all combustion appliances and all bedrooms for occupants in the event of alarm.

4842	rc DRYER, BATH AND KITCHEN FANS VENTED OUTDOORS : (1 time)	AL	\$0.00
Ensure operational bathroom and kitchen exhaust fans ducted to outside. (Upon completion, ensure ceiling is insulated.) Vent clothes dryer to outside (not to crawl spaces or attics).			

4843	rc DUCT AIR TIGHTNESS TESTING : (1 time)	EA	\$0.00
Conduct standard RESNET duct airtightness assessment ( <a href="http://www.resnet.us/standards/duct_test.pdf">www.resnet.us/standards/duct_test.pdf</a> ). Conduct/repeat duct testing to ensure target of $Q_{n,out} = 0.06$ ( $Q_n = \text{CFM}_{25\text{out}} / \text{conditioned area of house}$ ) is met. If not, assess leakage points and advise house supervisor of recommended action.			

For all homes with planned atmospheric combustion furnaces/water heaters or with existing equipment that will remain after retrofit work with a home professional BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space during testing. Disable combustion furnaces and water heaters unless a plan has been executed specifically to ensure combustion safety during testing. If combustion appliances exist and are being replaced with non-combustion appliances, disable appliances and remove from premises prior to testing.

Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.

# Specification Listing

## Retrofit Challenge

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|-------------|---|----|--------|
| <b>4907</b> | <b>rc AIR SEAL ATTIC : (1 time)</b>   | EA | \$0.00 |
|             | <p>Prior to adding ceiling insulation, box-in or eliminate all recessed lighting fixtures not rated air tight and approved for insulation contact (ICAT).</p> <p>Insulate interior attic hatches and stairs with rigid foam or batt insulation to R-19 and weather-strip edge.</p> <p>Where attics extend over porches, provide air barrier (house wrap, blue board, etc.) to prevent ceiling insulation spillage onto porch ceiling.</p> <p>Where floor cavities abut attic space, provide air barrier to keep attic air out of floor cavity.</p> <p>Install ventilation baffles and insulation dams at eaves to prevent ceiling insulation spillage into soffit.</p>  |    |        |
| <b>4911</b> | <b>rc INSULATE WALL--R-13 KRAFT FACED BATT : (1 time)</b>   | SF | \$0.75 |
|             | <p>When any exterior frame wall cavity is exposed install R-13 or better insulation to RESNET Grade 1 specifications. Air-seal with code approved sealant top plate holes and repair holes in exterior sheathing. Install R-13 insulation between studs per manufacturer's specifications, carefully fit around all mechanical and structural components so that there are no gaps, the batts not compressed, and the cavities are completely filled. If using kraft-backed product staple flanges to the faces of the studs.</p> <p>Insulation must be inspected before wall finish is installed. Notify owner when insulation is ready for inspection. An inspection will include spot checks for quality, pulling some of the facing away from the studs. The contractor will reinstall areas accessed for inspection.</p> |    |        |
| <b>4913</b> | <b>rc INSULATE BLOCK WALL : (1 time)</b>  | SF | \$0.75 |
|             | <p>When any exterior block wall has its drywall removed, install a continuous layer of rigid insulation followed by furring strips for drywall attachment. After air sealing (Spec # 4916) install a rigid insulation board product such as isocyanurate or styrofoam. Attach board product with furring strips which will be used to attach drywall to wall. Ensure isocyanurate insulation is installed with the reflective surface facing the airspace between drywall and insulation. Notify Owner when the installation is ready for inspection. Insulation must be inspected before the wall finish is installed.</p>   |    |        |

# Specification Listing

## Retrofit Challenge

**4916 rc AIR-SEAL BUILDING ENVELOPE : (1 time)** FL \$375.00  
 Pre-retrofit: Conduct standard RESNET whole-house airtightness assessment.

For gas appliances, both new installations and current equipment intended to remain in place post retrofit, ensure specifications, implementation and installation details are in compliance with 2010 Florida Building Code Residential Chapter 24 Section G2407 (2009 International Fuel Gas Code Chapter 3 Section 304) for indoor and outdoor combustion air and make-up air. Add permanent openings to the building as needed for compliance as specified in Section G2407.6 (304.6). Additionally, take these steps:

During retrofit: Disable combustion furnaces and water heaters unless a plan has been executed specifically to ensure combustion safety. If combustion appliances exist and are being replaced with non-combustion appliances, disable appliances and remove from premises prior to retrofit.

Work with a home professional that is BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space before, during, and after renovation. Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.

If test results exceed target of 6 or less air changes per hour at the test pressure of 50 pascals (ACH50 => 6.0), identify major leakage points and communicate prioritized list of sealing points to house supervisor.

Seal with code-approved sealant the following common air infiltration points:

- \* Windows
- \* Doors - replace weather-stripping if missing or degraded
- \* Lighting fixtures and ceiling fans (drywall gap behind cover/trim)
- \* Kitchen exhaust fan chase (at ceiling)
- \* Switches and outlets - if replacing covers, seal boxes to drywall
- \* Plumbing penetrations through interior and exterior walls (e.g. under sinks)
- \* Plumbing access panels - secure tightly and/or weather-strip
- \* Attic hatch or stair - weather-strip
- \* Interior AHU closet - seal all edges and seams of walls, ceiling, and ducts
- \* Soffits over cabinets or housing lighting - add air barrier above
- \* Holes in drywall
- \* Frame floor penetrations for plumbing and electrical

Post-retrofit: Repeat whole-house testing to ensure target is met. If not, assess leakage points and advise house supervisor of recommended action.

Conduct post-renovation testing to verify that no air pressure conditions have been created that jeopardize either combustion air supply or exhaust or that would result in combustion exhaust gases entering the conditioned space.

**4917 rc PRESSURE BALANCE AIR DISTRIBUTION SYSTEM : (1 time)** EA \$0.00  
 Follow 2010 FL Building Code: Mechanical Chapter 6 Section 601.4: Balanced Return Air

Pressure differentials across closed doors where returns are centrally located shall be limited to 0.01 inch WC (2.5 pascals) or less. Pressure differentials across fire walls in ceiling space plenums shall be limited to 0.01 inch WC (2.5 pascals) by providing air duct pathways or air transfer pathways from the high pressure zone to the low zone.

**4921 rc UNVENTED ATTIC : (1 time)** EA \$0.00  
 Consult an energy rater, engineer, or other building scientist, regarding exiting or planned unvented attics. Careful detailing and quality control are required to prevent uncontrolled heat, air, and moisture flow.

# Specification Listing

## Retrofit Challenge

4924	<b>rc ATTIC INSULATION--INCREASE TO R-38 : (1 time)</b> Prior to adding ceiling insulation, perform air-sealing of attic as per spec 4907 (rc AIR SEAL ATTIC), including boxing-in or eliminating all recessed lighting fixtures not rated air tight and approved for insulation contact (ICAT). Add insulation to achieve RESNET Grade 1 R-38 throughout. Blow in a fiberglass product that minimizes dust and inhalable fibers, or blow in borate treated (no ammonium sulfate permitted), cellulose insulation per manufacturer's specifications, to create a uniform RESNET Grade 1 R-38. Alternatively lay a continuous layer of unfaced fiberglass batts over existing insulation to increase total attic rating to at least R-38.	SF	\$0.50
4926	<b>rc INSULATE ATTIC KNEE WALLS : (1 time)</b> Insulate knee walls to RESNET Grade I R-13 or greater. Ensure a durable installation that will hold insulation in contact with drywall.	LF	\$0.00
4927	<b>rc ATTIC R-38 : (1 time)</b> After air sealing attic as per spec 4907 (rc AIR SEAL ATTIC), prepare attic space by installing firestop baffels at all non-ICAT lights and chimneys and vent baffels at soffits. Blow a fiberglass product that minimizes dust and inhalable fibers, or install blown-in borate treated (no ammonium sulfate permitted), cellulose insulation per manufacturer's specifications, to create a uniform RESNET Grade 1 R-38.	SF	\$1.30
4958	<b>rc INSTALL CRAWL SPACE GROUND COVER : (1 time)</b> Install a 6 mil poly vapor barrier on ground in crawl space and extend up foundation walls and supports. Fasten the plastic to the masonry wall with mechanical fasteners and large washers. Overlap seams in the plastic by 6 inches and extend up crawl space walls and supports a minimum of 1 foot. If drainage is compromised by slope of floor correct with the addition of fill prior to covering ground or install a sump pump.	SF	\$0.55

## Paint & Wallpaper (19)

		UoM	Total Unit Cost
5453	<b>rc PAINTING--GENERAL REQUIREMENTS : (1 time)</b> All paint low-VOC. Exterior colors shall be white or light. All surfaces clean/dry. Remove loose, blistered, scaling, deteriorated paint. Secure loose materials, set nails, fill holes, dents & cracks. Remove all deteriorated glazing compound & reglaze. Paint when temp is from 40-100 deg. No show-through, runs, sags or brush marks. All unpainted hardware to be paint free. No windows shall be painted shut. Remove ALL paint from glass, inside and out.	EA	\$0.00
5854	<b>rc REMOVE WALLPAPER FROM EXTERIOR WALLS : (1 time)</b> No wall paper on interior surfaces of exterior walls. Scrape surface to remove loose wallpaper, remove remaining wall paper with steam or other nontoxic method. Spackle holes and feather patches prior to painting.	SF	\$1.20

## HVAC (21)

**UoM      Total Unit Cost**

# Specification Listing

## Retrofit Challenge

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|-------------|--|----|----------|
| <b>6004</b> | <b>rc ATMOSPHERICALLY VENTED GAS EQUIPMENT IS PRESENT : (2 times)</b><br>For gas appliances, both new installations and current equipment intended to remain in place post retrofit, ensure specifications, implementation and installation details are in compliance with 2010 Florida Building Code Residential Chapter 24 Section G2407 (2009 International Fuel Gas Code Chapter 3 Section 304) for indoor and outdoor combustion air and make-up air. Add permanent openings to the building as needed for compliance as specified in Section G2407.6 (304.6). Additionally, take these steps:<br><br>During retrofit: Disable combustion furnaces and water heaters unless a plan has been executed specifically to ensure combustion safety. If combustion appliances exist and are being replaced with non-combustion appliances, disable appliances and remove from premises prior to retrofit.<br><br>Work with a home professional that is BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space before, during, and after renovation. Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.<br><br>Conduct post-renovation testing to verify that no air pressure conditions have been created that jeopardize either combustion air supply or exhaust or that would result in combustion exhaust gases entering the conditioned space.<br><br>Install carbon monoxide (CO) detectors and post an action plan near all combustion appliances and all bedrooms for occupants in the event of alarm. | AL | \$0.00   |
| <b>6005</b> | <b>rc COMBUSTION APPLIANCE REPLACEMENT - GENERAL REQUIREMENTS : (1 time)</b><br>No new atmospheric combustion furnaces or water heaters should be installed inside the conditioned space. Replacement gas furnaces should be high-efficiency, sealed combustion units or forced draft (power vent). Replacement gas water heaters should be direct-vent (tank type or tankless) or forced draft (power vent).  |    | \$0.00   |
| <b>6014</b> | <b>rc HVAC NOT BEING REPLACED : (1 time)</b><br>HVAC contractor to evaluate, and service if needed, refrigerant charge, inside and outside coil condition, condensate drain lines, and gas furnace components including exhaust flues, combustion air supply, gas lines, and other major equipment components. Clean, inspect, oil and adjust heating equipment and controls. Do not obstruct under-AHU filter cavity, if present. Install MERV 6 filter. Report any recommended part replacement to owner.  | EA | \$110.00 |
| <b>6044</b> | <b>rc OUTSIDE AIR VENTILATION : (1 time)</b><br>Given pre-retrofit whole house airtightness test results with estimated natural infiltration $\leq 0.35$ , seek technical support from home energy rater or other qualified consultant regarding possibility of mechanical ventilation system including need, space availability, and physical challenges.   | EA | \$0.00   |

# Specification Listing

## Retrofit Challenge

6171 rc HEAT PUMP- REPLACE--ENERGY STAR : (1 time) EA \$7,500.00

Use the most recent version of the Air Conditioning Contractors of America (ACCA) Manual J residential load calculation tool (<http://www.acca.org/tech/manualj/>) calculate the load with manual J based on the post rehab building envelope, and use the most recent version of ACCA's Manual S for equipment selection. Provide both Manual J and S reports to the Owner for review and approval prior to installation.

Remove existing HVAC system, recycle all metal components and dispose of all other materials in a code legal dump after removing all CFC and HCFCs.

For all homes with planned atmospheric combustion water heaters or with existing gas equipment that will remain after retrofit:

If gas equipment is present or planned, both new installations and current equipment intended to remain in place post retrofit, ensure specifications, implementation and installation details are in compliance with 2010 Florida Building Code Residential Chapter 24 Section G2407 (2009 International Fuel Gas Code Chapter 3 Section 304) for indoor and outdoor combustion air and make-up air. Add permanent openings to the building as needed for compliance as specified in Section G2407.6 (304.6).

Install an ENERGY STAR Rated Heat Pump to existing duct work. Heat Pump will have minimum limited warranties of 5 years on parts. New outdoor heat pump shall be installed on a code approved outdoor pad or lintels and be set on 6" pump-up legs.

If gas equipment is present work with a home professional BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space before, during, and after renovation. Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.

Seal all accessible (minimum 30" clearance) duct joints and seams with UL181-rated materials, preferably fiberglass mesh embedded mastic, including joints and edges in supply and return runs, return plenum, and connections to AHU. Remove all existing cloth duct tape prior to installing mastic.

If gas equipment is present conduct post-renovation testing to verify that no air pressure conditions have been created that jeopardize either combustion air supply or exhaust or that would result in combustion exhaust gases entering the conditioned space.

If gas equipment is present install carbon monoxide (CO) detectors and post an action plan near all combustion appliances and all bedrooms for occupants in the event of alarm.

6323 rc INTERIOR AIR HANDLER CLOSET WHEN REPLACING AIR HANDLER : (1 time) EA \$250.00

Modify or create a closet with a dedicated return plenum. Form a sealed air barrier of drywall or rigid duct board (sealed on the foil side whether facing in or out) and return air grille(s) serving the main body of the house. Where the return plenum is formed by open framing and a plywood platform, install and seal an air barrier (drywall or duct board) to separate return from adjacent wall cavities. Provide partial door above return (or solid door on side wall) for AHU access. If necessary, extend platform to form door sill.

- o Use code-approved sealant. For duct board connections, preferably fiberglass mesh embedded in water based mastic.
- o No open wall cavities in closet or return air plenum.
- o No louvered door returns.
- o No metal or frame air handler stands in full closet returns.
- o Complete drywall finish at ceiling of closet. Seal gap around supply plenum

If a full closet return (I.E. air handler on stand in closet) is unavoidable, seal all joints, seams, and edges of closet air barrier (eg. drywall, floor finish, sub-floor). Install air barrier if necessary to enclose wall cavities and separate closet from attics.

# Specification Listing

## Retrofit Challenge

- 6324 rc Interior AHU Closets (no AHU replacement): : (1 time)** EA \$0.00  
Replace louvered doors that serve as return air pathways with correctly sized return air grilles mounted in a solid door or sidewall (sidewall must face in the main body of the house).

Wherever the air handler is mounted on a plywood platform over a return plenum formed by open wall cavities, install and seal at all edges and seams an air barrier (drywall or duct board) to form a sealed return plenum. Where the return plenum is formed by open framing and a plywood platform, install and seal an air barrier (drywall or duct board) to separate return from adjacent wall cavities. Provide partial door above return (or solid door on side wall) for AHU access. If necessary, extend platform to form door sill.

- o Use code-approved sealant. For duct board connections, preferably fiberglass mesh embedded in water based mastic.
- o No open wall cavities in closet or return air plenum.
- o Complete drywall finish at ceiling of closet. Seal gap around supply plenum

- 6326 rc GARAGE AIR HANDLER PLATFORMS AT AHU REPLACEMENT : (1 time)** EA \$0.00  
After AHU removal, inspect return plenum for open wall cavities and gaps. Install an air barrier (drywall or duct board) to seal wall cavities Seal seams and joints of air barrier forming the return air plenum with code-approved sealant. For duct board connections, preferably fiberglass mesh embedded in water based mastic. No open wall cavities in closet or return air plenum.

- 6334 rc DUCT AIR TIGHTNESS TESTING : (1 time)** EA \$0.00  
Conduct standard RESNET duct airtightness assessment ([www.resnet.us/standards/duct\\_test.pdf](http://www.resnet.us/standards/duct_test.pdf)). Conduct/repeat duct testing to ensure target of  $Q_{n,out} = 0.06$  ( $Q_n = \text{CFM}_{25\text{out}}/\text{conditioned area of house}$ ) is met. If not, assess leakage points and advise house supervisor of recommended action.

For all homes with planned atmospheric combustion furnaces/water heaters or with existing equipment that will remain after retrofit work with a home professional BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space during testing.

Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.



# Specification Listing

## Retrofit Challenge

6336	<b>rc SUPPLY DUCT REPLACEMENT : (1 time)</b>	SY	\$4.00
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Install new flex duct and duct board supply duct system using materials with a minimum R-value of 6. Seal joints, collars, flex duct connections and seams in ductwork and plenums with a mastic sealant designed for ducts. Apply a minimum 30 mil mastic thickness. Include a mastic- bedded application of fiberglass mesh over holes or open cracks. Do not use tape.

For all homes with planned atmospheric combustion furnaces/water heaters or with existing equipment that will remain after retrofit:

Work with a home professional BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space before, during, and after supply duct alterations.

Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.

Conduct post-supply duct replacement testing to verify that no air pressure conditions have been created that jeopardize either combustion air supply or exhaust or that would result in combustion exhaust gases entering the conditioned space.

6337	<b>rc DUCT SEALING : (1 time)</b>	LF	\$4.00
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Ensure flex duct insulation covers all collar and boot connections. Seal all duct connections with UL181-rated mastic, including joints and edges in supply and return runs, return plenum, and connections to AHU. Seal joints, collars, flex duct connections and seams in ductwork and plenums. Apply a minimum 30 mil thickness of mastic. Include a bedded application of fiberglass mesh over holes or open cracks. Do not use tape.

For all homes with planned atmospheric combustion furnaces/water heaters or with existing equipment that will remain after retrofit work with a home professional BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space during or after repair.

6338	<b>rc DUCT SUPPORT : (1 time)</b>	EA	\$0.00
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Flex duct runs should not be kinked or have sharp bends, and they should have as little contact as possible with ceiling insulation. Strap flex ducts to trusses, 5' or less spacing, to achieve clearance over anticipated ceiling insulation. Ideally, locate ducts midway between roof deck and insulation.

6351	<b>rc PRESSURE BALANCE AIR DISTRIBUTION SYSTEM : (1 time)</b>	EA	\$0.00
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Follow 2010 FL Building Code: Mechanical Chapter 6 Section 601.4: Balanced Return Air

Pressure differentials across closed doors where returns are centrally located shall be limited to 0.01 inch WC (2.5 pascals) or less. Pressure differentials across fire walls in ceiling space plenums shall be limited to 0.01 inch WC (2.5 pascals) by providing air duct pathways or air transfer pathways from the high pressure zone to the low zone.

### Plumbing (22)

**UoM      Total Unit Cost**

6603	<b>rc COMBUSTION WATER HEATER REPLACEMENT - GENERAL REQUIREMENTS : (1 time)</b>		\$0.00
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No new atmospheric combustion water heaters should be installed inside the conditioned space. Replacement gas water heaters should be direct-vent (tank type or tankless) or forced draft (power vent).

# Specification Listing

## Retrofit Challenge

<b>6604</b>	<b>rc ATMOSPHERICALLY VENTED GAS WATER HEATER IS PRESENT : (1 time)</b> For atmospherically vented water heaters, both new installations and current equipment intended to remain in place post retrofit, ensure specifications, implementation and installation details are in compliance with 2010 Florida Building Code Residential Chapter 24 Section G2407 (2009 International Fuel Gas Code Chapter 3 Section 304) for indoor and outdoor combustion air and make-up air. Add permanent openings to the building as needed for compliance as specified in Section G2407.6 (304.6).	AL	\$0.00
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During retrofit disable combustion water heaters unless a plan has been executed specifically to ensure combustion safety. If combustion appliances exist and are being replaced with non-combustion appliances, disable appliances and remove from premises prior to retrofit.

Work with a home professional BPI or RESNET certified in COMBUSTION SAFETY Testing to evaluate and devise a combustion safety plan to prevent accidentally back drafting exhaust fumes into the conditioned space before, during, and after renovation. Tests should be conducted to assess air pressure conditions in the combustion air zone where the furnace and/or water heater are located and air pressure differences between the combustion air zone and the occupied areas of the home.

Conduct post-renovation testing to verify that no air pressure conditions have been created that jeopardize either combustion air supply or exhaust or that would result in combustion exhaust gases entering the conditioned space.

Install carbon monoxide (CO) detectors and post an action plan near all combustion appliances and all bedrooms for occupants in the event of alarm.

<b>6608</b>	<b>rc INSULATE HOT WATER SUPPLY PIPES : (1 time)</b> Insulate accessible hot water pipes.	LF	\$0.00
<b>7052</b>	<b>rc INSTALL INSULATING TANK WRAP : (1 time)</b> Wrap hot water tank with R-5 blanket (for gas units, read and follow manufacture's instructions carefully).	EA	\$0.00
<b>7087</b>	<b>rc WATER HEATER-ENERGY STAR HYBRID HEAT PUMP : (1 time)</b> Install a 50 gallon capacity ENERGY STAR qualified Heat Pump electric water heater. Include pressure and temperature relief valve, discharge tube to within 6" of floor, owners manual and all piping. Maintain required clearance around unit. Provide condensate line. Recycle the existing water heater.	EA	\$1,750.00

### Electric (23)

**UoM      Total Unit Cost**

<b>7749</b>	<b>rc REPLACE FLUORESCENT TUBE FIXTURE : (1 time)</b> Install fixture equiped with an electronic ballast and T8 lamps	EA	\$0.00
<b>7758</b>	<b>rc CFL REPLACEMENT BULBS : (1 time)</b> Replace existing incandescent bulbs with appropriately sized CFL bulbs.	AL	\$0.00
<b>8011</b>	<b>rc ENERGY STAR CEILING FAN : (1 time)</b> Install an ENERGY STAR approved ceiling fan directly to framing or hung on a manufacturer's recommended metal brace.	EA	\$305.00
<b>8016</b>	<b>rc ENERGY STAR CEILING FAN w/ LIGHT FIXTURE : (1 time)</b> Install an ENERGY STAR approved ceiling fan with a light fixture directly to framing or hung on a manufacturer's recommended metal brace. Ensure light bulbs are CFL	EA	\$30.00

### Appliances (25)

**UoM      Total Unit Cost**

<b>8475</b>	<b>REFRIGERATOR--18 CF--ENERGY STAR : (1 time)</b> Dispose of old refrigerator. Install an ENERGY STAR approved 2 door, top freezer, white, frost free refrigerator with at least 17.5 cubic feet.	EA	\$1,425.00
<b>8476</b>	<b>rc CLEAN REFRIGERATOR COILS : (1 time)</b> If not replacing refrigerator clean refrigerator coils	EA	\$0.00