



# Green Single Family Rehabilitation Specifications 2008



Thanks for your interest in Green Housing Rehabilitation. Enterprise Community Partners [www.enterprisecommunity.org](http://www.enterprisecommunity.org) has provided a selection of Housing Rehabilitation Specifications designed to meet the requirements of both mandatory and optional 2008 Green Communities Criteria (which can be downloaded at [www.greencommunitiesonline.org](http://www.greencommunitiesonline.org)). These specifications were created with a mixed heating and cooling climate in mind, and must be reviewed and adapted to your specific climate and housing stock. These specifications carry no implicit guarantee of applicability in your individual situation.

The specifications are provided in MS Word format so that they can be easily edited and reproduced.

The ideal integration of Green Specifications in a local Housing Rehabilitation Program would include:

- customization of the specifications for your climate, housing stock and housing programs,
- training on the use of these specifications, and
- training for contractors as they implement the specifications in your work and/or housing program(s).

Enterprise is eager to assist you in arranging for such technical assistance and training. Please feel free to contact us at [greencommunities@enterprisecommunity.org](mailto:greencommunities@enterprisecommunity.org).

These specifications are also available as part of the Library of Specification in the Housing Developer Pro<sup>®</sup> (HDP) software product. HDP automates specification writing and cost estimating. A fully functional 30-day demo of HDP is available at [www.CommunityDevelopmentSoftware.com](http://www.CommunityDevelopmentSoftware.com).

Please keep the following points in mind as you apply these specifications to your housing stock and housing programs.

- The 2008 Green Housing Rehabilitation Specifications are designed for use by construction professionals who can identify the appropriate treatment to address specific building issues. The use of these specifications requires experience in designing housing rehabilitation projects and a strong knowledge of construction.
- They are written with the 2008 Green Communities Criteria in mind.
- It is necessary to communicate all construction requirements to contractors. Additional training on working with contractors while implementing Green measures is recommended and can be made available through Green Communities. ([greencommunitiesonline.org](http://greencommunitiesonline.org))

Note: These specs regularly reference specific products by brand and model number. It is recommended that you include a General Requirements Specification that defines the process for making substitutions. Here's an example:

#### **SUBSTITUTION APPROVAL PROCESS**

Any requests for substitutions of specified proprietary items must accompany the initial proposal and shall include: the manufacturer's specifications; full installation instructions and warranties. The agency and owner will notify the contractor of decision at contract award.

# Green Housing Rehabilitation Specs

## General Requirements

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
7	GREEN COMMUNITIES INITIATIVE—GENERAL REQUIREMENTS	<p>This project is designed to meet the Green Communities Initiative Criteria created by Enterprise Community Partners. The following requirements, and other requirements described in specifications with the suffix “GCI”, must be strictly adhered to:</p> <ul style="list-style-type: none"> <li>* All paints and primers must meet the Green Seal G-11 Environmental Standard <a href="http://www.green seal.org/certification/standards/paints.cfm">http://www.green seal.org/certification/standards/paints.cfm</a></li> <li>* Adhesives must comply with Rule 1168 of the South Coast Air Quality Management District. - <a href="http://www.aqmd.gov/rules/reg/reg11/r1168.pdf">http://www.aqmd.gov/rules/reg/reg11/r1168.pdf</a></li> <li>* All caulks and sealants, including floor finishes, must comply with regulation 8, rule 51, of the Bay Area Air Quality Management District <a href="http://www.baaqmd.gov/dst/regulations/rq0851.pdf">http://www.baaqmd.gov/dst/regulations/rq0851.pdf</a> and may not exceed 250 grams of VOC per liter of coating as thinned to the manufacturer’s maximum recommendation, excluding the volume of any water, exempt compounds, or colorant added to the tint bases.</li> <li>* All particleboard components shall meet ANSI A208.1 for formaldehyde emission limits or all exposed particleboard edges shall be sealed with a low-VOC sealant or have a factory-applied low-VOC sealant prior to installation. All MDF edges shall meet ANSI A208.2 for formaldehyde emission limits or all exposed MDF edges shall be sealed with a low-VOC sealant or have a factory-applied low-VOC sealant prior to installation.</li> </ul>	PR	
	VENTILATION—ASHRAE 62.2—GENERAL REQUIREMENTS—2008 GCI	<p>The Green Communities Initiative Criteria require a ventilation system to meet ASHRAE 62.2 for residential structures under 4 stories when undertaking “Substantial Rehabilitation.” See <a href="http://www.ashrae.org/technology/page/548">http://www.ashrae.org/technology/page/548</a> and <a href="http://www.buildingscience.com/documents/reports/rr-0502-review-of-residential-ventilation-technologies/">http://www.buildingscience.com/documents/reports/rr-0502-review-of-residential-ventilation-technologies/</a></p>		

## Waste Stream

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
797	DISPOSAL— RECYCLE CARDBOARD— GCI	Recycle all cardboard generated by construction and all cardboard trash in the house to the local recycling plant. DO NOT dispose of cardboard in any other manner. A \$200 penalty will be assessed to the contract if cardboard is improperly disposed.	PR	

## Water, Moisture and Mold Management

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
4667	STORM DRAIN LABELS—GCI	Label all storm drains or storm inlets within 50 feet of the property to clearly indicate where the drain or inlet leads. Use a simple painted stencil that reads: "Caution – leads to [name of body of water]!"	EA	
7012	COMMODE— REPLACE—1.3 GPF—2008 GCI	Install a 1.3 GPF close-coupled, white, vitreous china commode such as an American Standard FloWise Compact Cadet 3 EL 2403.128, or any commode tested through the latest "Maximum Performance" (MaP) testing sponsored by Canadian Water and Wastewater Association (CWWA), the California Urban Water Conservation Council (CUWCC), the US-Canadian Alliance for Water Efficiency (AWE) and Veritec Consulting Inc. that has shown to score 800 or better on the MaP Flush Performance test (grams of solid waste removed in a single flush). See the following link for the January 2008 report. <a href="http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf">http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf</a> Include a manufacturer's approved plastic or pressed wood white seat, supply pipe, shut-off valve, and wax seal.	EA	

7014	COMMODE— REPLACE—Dual Flush—2008 GCI	Install a “Dual Flush,” 2-piece, close-coupled, white, vitreous china commode with flow rates of 1.6 and .9 GPF for its respective high and low flushes, such as a TOTO Aquia CST414M Elongated Front, Dual Flush commode Toilet Kit, or any commode tested through the latest “Maximum Performance” (MaP) testing sponsored by Canadian Water and Wastewater Association (CWWA), the California Urban Water Conservation Council (CUWCC), the US-Canadian Alliance for Water Efficiency (AWE) and Veritec Consulting Inc. that has shown to score 800 or better on the MaP Flush Performance test (grams of solid waste removed in a single flush). See the following link for the January 2008 report. <a href="http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf">http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf</a> Include a manufacturer’s approved plastic or pressed wood white seat, supply pipe, shut-off valve, and wax seal.	EA	
7016	COMMODE— REPLACE—1.1 GPF—2008 GCI	Install a 1.1 GPF close-coupled, white, vitreous china commode such as a Kohler Wellworth K-3531-TR <b>Pressure Lite</b> Elongated, or any 1.1 GPF commode tested through the latest “Maximum Performance” (MaP) testing sponsored by Canadian Water and Wastewater Association (CWWA), the California Urban Water Conservation Council (CUWCC), the US-Canadian Alliance for Water Efficiency (AWE) and Veritec Consulting Inc. that has shown to score 800 or better on the MaP Flush Performance test (grams of solid waste removed in a single flush). See the following link for the January 2008 report. <a href="http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf">http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf</a> Include a manufacturer’s approved plastic or pressed wood white seat, supply pipe, shut-off valve, and wax seal.	EA	
6935	SHOWERHEAD —2 GPM—GCI	Install a chrome-plated brass showerhead with a maximum 2.0 gallons per minute flow rate. Include arm where required. Note: any low-flow showerhead should be controlled by a valve that has been designed, tested, and verified to function safely at the reduced flow rate.	EA	
6830	SINK - SINGLE BOWL COMPLETE— GCI	Install a 22-gauge, 25"x22"x7" deep, single bowl, stainless steel, self-rimming kitchen sink including a steel, metal body faucet, rated at 2.0 GPM or less, with a 15 year drip- free warranty, grease trap, supply lines, full port ball type shut-off valves and escutcheon plates on all supply and drain lines. NOTE: All copper is to be soldered (no compression fittings) and all PVC fittings glued.	EA	

6835	SINK - DOUBLE BOWL COMPLETE—GCI	Install a 22-gauge 33"x22"x7" double bowl, stainless steel, self-rimming kitchen sink including a steel, metal body faucet, rated at 2.0 GPM or less, with a 15-year drip-free warranty, grease trap, supply lines, full port ball-type shut-off valves and escutcheon plates on all supply and drain lines. NOTE: All copper is to be soldered (no compression fittings) and all PVC fittings glued.	EA	
6810	FAUCET—KITCHEN SNGL LEVER—GCI	Install a single lever, washerless, metal bodied faucet with 15-year, drip-free guarantee and maximum flow of 2 gallons per minute.	EA	
6875	FAUCET—LAVATORY SINGLE LEVER—GCI	Install a washerless, single control, metal bodied faucet with a 15-year, drip-free warranty and a maximum flow rate of 2.0 GPM. Include chromed brass shut-off valves and trap if not existing.	EA	
7181	BATH - 4 FIXTURE COMPLETE—GCI	Re-plumb entire bath to provide fixtures as follows: 1) WHITE 5' fiberglass tub/shower unit w/ Delta single lever diverter valve, showerhead with a maximum 2.0 GPM flow rate and friction fit chrome shower rod; (note: exterior wall sections behind the tub/shower unit must be completely air-sealed prior to installation) 2) WHITE 1.6 Gal. commode with china top and toilet seat, new brass-bodied stop and braided stainless flexible supply line; 3) 24" plywood vanity w/ cultured marble integrated top, bowl and backsplash and single lever brass-bodied chrome faucet with a maximum 2.0 GPM flow rate. Include PVC DWV w/ Air Admittance Valve, type L copper with brass-bodied stops or PEX supply piping, and escutcheon plates on all supply and waste lines. 4) Recessed mirrored medicine cabinet and 4-piece chrome plated steel bathroom accessory set consisting of one 24" towel bar, soap dish, tumbler/toothbrush holder, and toilet paper holder. NOTE: access panel for tub plumbing to be in closet area when possible.	EA	

7183	BATH FIXTURES— WATER SAVING—2008 GCI	Install a 1.1 GPF close-coupled, white, vitreous china commode such as a Kohler Wellworth K-3531-TR <b>Pressure Lite</b> Elongated, or any 1.1 GPF commode tested through the latest “Maximum Performance” (MaP) testing sponsored by Canadian Water and Wastewater Association (CWWA), the California Urban Water Conservation Council (CUWCC), the US-Canadian Alliance for Water Efficiency (AWE) and Veritec Consulting Inc. that has shown to score 800 or better on the MaP Flush Performance test (grams of solid waste removed in a single flush). See the following link for the January 2008 report. <a href="http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf">http://www.cwwa.ca/pdf_files/Map%2011th%20Edition%20Full%20Report1.pdf</a> Include a manufacturer’s approved plastic or pressed wood white seat, supply pipe, shut-off valve, and wax seal, a 1.75 GPM showerhead, and 1.5 GPM bath vanity faucet. (Per GCI Criteria 4.1c for 5 points, “Upgrade Water-Conserving Fixtures.”)	EA	
6958	BATHTUB/ SHOWER—5’ FIBERGLASS— COMPLETE— GCI	Install a 5’, 4-piece, Sterling 71020110 Series 7102 V-60-HG 60" Tub/Shower - Complete Unit - Left Hand or 71020120 Right Hand - <a href="http://www.sterlingplumbing.com/consumer/">http://www.sterlingplumbing.com/consumer/</a> - fiberglass tub and shower unit complete with lever operated pop-up drain and overflow, PVC waste, single lever shower diverter, shower rod and Delta Faucet "Monitor" Model 1343 tub/shower faucet - <a href="http://www.deltafaucet.com/">http://www.deltafaucet.com/</a> - and a showerhead with a maximum 2.0 GPM flow rate.	EA	
8491	DISHWASHER— 2 CYCLE—GCI	Provide and install a 24” white, 2-cycle, built-in Energy Star <sup>®</sup> labeled dishwasher including all alterations and connections to plumbing and electric system. Whirlpool #: 267844 Model: DU811SWPU – or – GE Model GSD1300NWW.	EA	
4981	INSULATE DOMESTIC WATER SUPPLY PIPE—GCI	Insulate exposed hot and cold water mains with closed cell polyethylene slip-on pipe insulation, sized to fit the pipe's diameter. Seal seams with either 5 mil Pipe Insulation sealing tape or Closure Clips designed for pipe insulation placed every 4 inches. Seal all butt joints between sections of pipe with 5 mil Pipe Insulation sealing tape. Neatly miter all angled junctions.	LF	

5416	TILE BACKER BOARD— CEMENTITIOUS —GCI	Install 1/2" fiberglass reinforced cement composition boards such as Durock <sup>®</sup> or HardieBacker <sup>™</sup> in area specified to accept ceramic tile. Space edges 1/4" from adjoining surfaces and fasten with minimum 1-1/4" long No. 8 x 0.375" HD self-drilling corrosion-resistant ribbed wafer-head screws (i.e. High-Low Rock On screws) designed specifically for backer board. Use product specified by manufacturer for particular application (such as walls or floors). For floors, bond backer board to plywood subfloor with thinset mortar using a 1/4" square notched trowel. On walls, all edges of backer boards must be supported by full-face 2' framing secured to the structure. On floors, backer board must be installed on 3/4" plywood over joists 16" on center or the joist/subfloor assembly must meet the manufacturer's specifications.	SF	
912	BASEMENT SLAB INSTALLATION— GCI	Install a continuous 4" thick basement slab using a 3,000 psi mix. Ensure the soil is uniformly and properly compacted. Install a 4" bed of 3/4" clean (no fines) gravel on top of the soil, provide expansion joints (also known as isolation joints) around the inside perimeter of the foundation using standard isolation joint material, and install 6-mil polyethylene sheet directly under the concrete to create a continuous vapor barrier ideally in one sheet but lapped 12" and taped at seams if seams are absolutely necessary. Install a 2-inch layer of gravel on top of the vapor barrier and place the concrete. Include plastic reinforcing fibers in the mix, like Fibermesh (Fibermesh Co., 4019 Industry Dr., Chattanooga, TN 37416; 615/892-7243). Screed, float, and finish with a steel trowel to a smooth surface that drains water to any existing drains, and strike control joints in the wet concrete at 8" intervals.	SF	
550	REGRADE FOUNDATION— GCI	Provide and grade a loam topsoil to create at least a 1-to-4 positive drainage away from house 4' from foundation. Seed, fertilize and roll with a local grass approved by the local USDA Extension Office and dehydrated cow manure. Lightly water to saturation. See <a href="http://www.csrees.usda.gov/Extension/index.html">www.csrees.usda.gov/Extension/index.html</a> for a listing of USDA Extension Offices.	SF	



2567	SIDING— HARDIPLANK— GCI	Prepare surface by removing nails, repairing sheathing, applying house-wrap and Hardiplank siding strictly to manufacturer’s specifications. Install 1"x8", 1/4" Hardiplank lap siding to the surface using hot-dipped galvanized nails or stainless steel nails driven at least 1" into studs. Stagger joints in adjacent pieces and center all butt joints over studs. Either install joints with a 3 mm gap filled with Hardiplank caulking compound or butt together without jointing compound. If not installing with a caulk-filled gap, install a piece of Hardiplank-approved sheathing behind each joint to flash the vertical seam. Where Hardiplank butts up against an accessory, fill joint with a 6 mm fillet of Hardiplank caulking.	SF	
------	-------------------------------	---	----	--

**Weatherization**

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
4903	AIR SEAL BUILDING ENVELOPE—GCI	Seal all accessible cracks, gaps and holes in the building envelope (the barrier between the indoor conditioned space and the outside) with low-VOC caulk (if <1/4") or expanding foam (if >1/4"). Seal all top plate and bottom plate penetrations. If the foundation masonry wall is open-core concrete block, seal the tops of the block with expanding foam. Seal all penetrations created by plumbing, gas lines, electrical boxes and outlets. Seal large accessible gaps around windows between house framing and window frame. Use special care on large sliding-glass doors and vinyl-framed windows: do not use expansive foam on these. Take care to seal all joints without excess sealant. Seal any gaps in the building envelope adjacent to flues with carefully cut-to-fit sheet metal that is securely fastened to framing, sealing all seams and gaps with fire-rated caulk. Seal recessed light fixtures in ceilings that are part of the building envelope and are not rated for insulation contact with an airtight box made of drywall sealed to the ceiling. Seal IC-rated recessed fixtures with caulk. Seal any entries to attic space using weather stripping on attic doors or hatches. Air sealing must be done prior to the installation of insulation.	Floor	

4904	AIR-SEAL— ISOLATE GARAGE— GCI	Seal all accessible cracks, gaps and holes in the building envelope between the conditioned space and the attached garage with low-VOC caulk (if <1/4") or expanding foam (if >1/4"). Seal all wall penetrations created by plumbing, gas lines, electrical boxes and outlets. Take care to seal all joints without excess sealant. Insure an air-seal between the conditioned space and the attached garage at all drywall surfaces. Weatherstrip the entrance door to the house.		
4996	INSULATE RIM JOIST— FOAM—GCI	After cleaning the area thoroughly, apply expanding foam to the rim joist at the entire perimeter of the basement and/or crawl space exterior walls to a value of R-19. Insulate from the subfloor for the first floor to the top of the foundation wall and seal all penetrations and the top of the foundation. Seal all openings within the area of the rim joist created by plumbing, gas lines, electrical boxes or any other penetrations.	LF	
4995	INSULATE RIM JOIST— FIBERGLAS S—GCI	After Air Sealing is complete, staple R-19 fiberglass batts with Kraft-faced backing to rim joist at the entire perimeter of the basement and/or crawl space exterior walls. Installation to extend from the subfloor for the first floor to the top of the foundation wall. The batts will be neatly cut to fit precisely with no compression of the fiberglass fibers, and cut to fit neatly around wires, pipes and other components that interfere.	LF	
4908	WALL INSULATION —DENSE PACK CELULOSE —GCI	After Air Sealing (Spec # 16-4903) drill 2-1/8" to 2-9/16" access holes for each stud cavity in the areas specified in interior or exterior locations approved by the CM. Install blow-in, borax-treated (no ammonium sulfate permitted), cellulose insulation per manufacturer's specifications and dense-packed into all specified wall cavities to a minimum density of 3.5 Lbs. per Cubic Foot for the entire cavity. Use a 1" to 1 1/4" ID vinyl "wall tube" attached to the standard cellulose blower tubing to place the cellulose deep into the wall cavity. Check each stud cavity for blocking and other obstructions prior to blowing. Carefully seal all drilled holes with wood or foam plugs and patch all holes to match surrounding materials if the surface is exposed. In balloon-framed houses ensure that blown cellulose is blocked from entering floor cavities such as 2 <sup>nd</sup> level floors. See - <a href="http://www.karg.com/PDF%20files/Presentations/Dense%20Pack%20Cellulose%20Insulation.pdf">http://www.karg.com/PDF%20files/Presentations/Dense%20Pack%20Cellulose%20Insulation.pdf</a> and <a href="http://www.karg.com/PDF%20files/Insulation%20density/Sidewall%20Tips%20Pfeiffer%20Wilson%20Fitzgerald%202003.pdf">http://www.karg.com/PDF%20files/Insulation%20density/Sidewall%20Tips%20Pfeiffer%20Wilson%20Fitzgerald%202003.pdf</a> for additional information.	SF	

4938	ATTIC INSULATION – CELLULOSE –DENSE PACK—GCI	After Air Sealing (Spec # 16-4903) Install blow-in, borax-treated (no ammonium sulfate permitted) cellulose insulation dense-packed into closed floor cavities to a minimum density of 3.5 Lbs. per CF. Maintain ventilation routes from soffit and other vents with baffles. Replace all material removed or cut to gain access to match existing materials. NOTE: If access to attic is via a fixed staircase, insulate stairs to attic, landing and interior stairwell walls as part of this item. If access is via a hatch, insulate the hatch with 3” of reflective foil-faced polyisocyanurate foam and seal edges with compatible foil tape. If access is via a fold-down stair, insulate the stair with an airtight 2” thick reflective foil-faced polyisocyanurate foam box with seams, and seal the edges with a compatible foil tape.	SF	
4935	ATTIC R-30 CELLULOSE –GCI	After Air Sealing (Spec # 16-4903) Install blow-in, borax-treated (no ammonium sulfate permitted), cellulose insulation per manufacturer's specifications to R30. Maintain ventilation routes from soffit and other vents with baffles. Replace all material removed or cut to gain access to match existing materials. NOTE: If access to attic is via a fixed staircase, insulate stairs to attic, landing and interior stairwell walls as part of this item, dense-packing the cellulose into closed floor, stair and wall cavities to a minimum density of 3.5 Lbs. per CF. If access is via a hatch, insulate the hatch with 3” of reflective foil-faced polyisocyanurate foam and seal edges with compatible foil tape. If access is via a fold-down stair, insulate the stair with an airtight 2” thick reflective foil-faced polyisocyanurate foam box with seams, and seal the edges with a compatible foil tape.	SF	
4937	ATTIC R-45 CELLULOSE –GCI	After Air Sealing (Spec # 16-4903) install blow-in, borax-treated (no ammonium sulfate permitted), cellulose insulation per manufacturer's specifications to R45. Maintain ventilation routes from soffit and other vents with baffles. Replace all material removed or cut to gain access to match existing materials. NOTE: If access to attic is via a fixed staircase, insulate stairs to attic, landing and interior stairwell walls as part of this item, dense-packing the cellulose into closed floor, stair and wall cavities to a minimum density of 3.5 Lbs. per CF. If access is via a hatch, insulate the hatch with 3” of reflective foil-faced polyisocyanurate foam, and seal edges with compatible foil tape. If access is via a fold-down stair, insulate the stair with an airtight 2” thick reflective foil-faced polyisocyanurate foam box with seams, and seal the edges with a compatible foil tape.	SF	

## Electrical

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
8137	UPDATE EXISTING ELECTRIC – BATHROOM— 2008 GCI	<p>NOTE: Remove all existing electric devices and wiring. Supply and install all materials necessary to update bathroom to 20A service.</p> <p>When complete, bathroom will include:</p> <ol style="list-style-type: none"> <li>1) One 20A GFCI receptacle located near sink.</li> <li>2) An Energy Star approved, ceiling mounted Fan/Light fixture rated for a min 100 watts w/ an exterior ducted vent fan capable of min. 80 CFM vented w/ damper to exterior such as NuTone QTREN080. Switch fan and light using a single switch with a time delay for the fan such as the EFI Fan/Light Time Delay Switch part # 5100.502 (in Ivory) <a href="http://www.energyfederation.org/consumer/default.php/cPath/39_766_134">http://www.energyfederation.org/consumer/default.php/cPath/39_766_134</a> or are equipped with a humidistat sensor, or operate continuously. Install metal duct and vent to the exterior ideally through a wall or gable end. All duct seams shall be sealed with duct mastic. Insulate the ductwork with vinyl or foil-faced R6 minimum duct insulation. Repair any damage to the ceiling from installation and air seal fan/light assembly to the ceiling with low-VOC caulk. FAN/LIGHT ALLOWANCE \$140.</li> <li>3) One wall-mounted, four-bulb vanity light above sink. Locate switch w/ GFCI outlet.</li> </ol> <p>Any additional circuit(s), device(s) and/or fixture(s) will be called for in a separate specification(s).</p>	RM	

7819	FAN/LIGHT FIXTURE— ENERGY STAR—2008 GCI	Install an Energy Star approved ceiling-mounted Fan/Light fixture rated for a min 100 watts w/ an exterior-ducted vent fan capable of min. 80 CFM vented w/ damper to exterior such as NuTone QTREN080. Switch fan and light using a single switch with a time delay for the fan such as the EFI Fan/Light Time Delay Switch part # 5100.502 (in Ivory) <a href="http://www.energyfederation.org/consumer/default.php/cPath/39_766_134">http://www.energyfederation.org/consumer/default.php/cPath/39_766_134</a> ) or are equipped with a humidistat sensor, or operate continuously. Install metal duct and vent to the exterior ideally through a wall or gable end. All duct seams shall be sealed with duct mastic. Insulate the ductwork with vinyl or foil-faced R6 minimum duct insulation. Repair any damage to the ceiling from installation and air seal fan/light assembly to the ceiling with low-VOC caulk. FAN/LIGHT ALLOWANCE \$140.	EA	
7752	ENERGY STAR INTERIOR CEILING FIXTURE— GCI	Install an Energy Star approved, 13-watt florescent ceiling light fixture such as a Lowes Good Earth Lighting - Neptune - Item #: 51017 Model: G2021WHI. Connect to existing wiring.		
7753	ENERGY STAR INTERIOR WALL FIXTURE— GCI	Install an Energy Star approved 13-watt fluorescent wall fixture such as the Home Depot - Progress Lighting Bedford Collection - Model P3186-09EBWB. Connect to existing wiring.	EA	
7751	ENERGY STAR KITCHEN CEILING FIXTURE— GCI	Install an Energy Star approved, four 4' tube, instant start florescent ceiling light fixture, with an acrylic diffuser such as the Lowes - American Fluorescent - Item #: 184346 - Model: PLW432RC. Connect to existing wiring.	EA	
8166	EXTERIOR LIGHT FIXTURE— REPLACE— GCI	Install a two-lamp halogen, dusk-to-dawn light fixture with motion-activated higher light level function, such as a Heath Zenith - Twin 150 Watt Quartz - Item #: 182159 - Model: SL-5512-BZA from Home Depot. Connect to existing wiring.	EA	

8722	CARBON MONOXIDE DETECTOR—GCI	Install at each sleeping area, minimum of one per floor, a hard-wired or plug-in carbon monoxide detector with audible alarm, battery back up and with a digital display capable of showing both peak CO level recorded by the alarm since it was last reset or unplugged, and the present level of carbon monoxide the unit is sensing.	EA	
------	------------------------------	--	----	--

## Ventilation

7836	KITCHEN RANGE HOOD— VENTED—GCI	Install an exterior-ducted, enameled range hood with integral minimum 2-speed fan control and light switched separately, capable of a minimum 150 CFM at a maximum of 10 sones. Attach hood to cabinet with screws. Include metal vent with all seams sealed with duct mastic, and roof or wall cap/damper assembly flashed appropriately for the exterior finish. Owner's choice of color.	EA	
6042	ACTIVE FRESH AIR INTAKE— FORCED AIR SYSTEM— APRILAIRE— GCI	Install an Aprilaire Model 8126 Ventilation Control System with temperature and humidity shut-offs to add fresh exterior air to the return plenum of the forced air HVAC system. Use 30-gauge rigid duct insulated with minimum R6 vinyl or foil-faced duct insulation. The inlet should be carefully located on an outside wall to avoid the addition of contaminants or moisture into the return air system, and must be placed a minimum of 10 feet away from sources of auto exhausts, clothes dryer exhaust, outside cooking facilities, laundry dryer vent, exhaust vent of heating units or bath and kitchen exhaust fan vents. <a href="http://www.aprilaire.com">http://www.aprilaire.com</a>	EA	
6043	ACTIVE FRESH AIR INTAKE— FORCED AIR SYSTEM— SKUTTLE— GCI	Install a 6" duct Skuttle 216 Make Up Air Control to add fresh exterior air to the return plenum of the forced air HVAC system and adjust damper to operate as specified. Use 30-gauge rigid duct insulated with minimum R6 vinyl or foil-faced duct insulation. The inlet should be carefully located on an outside wall to avoid the addition of contaminants or moisture into the return air system and must be placed a minimum of 10 feet away from sources of auto exhausts, clothes dryer exhaust, outside cooking facilities, laundry dryer vent, exhaust vent of heating units or bath and kitchen exhaust fan vents. <a href="http://www.skuttle.com/216.html">http://www.skuttle.com/216.html</a>	EA	
6003	PASSIVE FRESH AIR INTAKE—GCI	Install a Tamarack passive intake vent ( <a href="http://www.efi.org">www.efi.org</a> ) installed through the specified exterior wall, flashed to be weather-tight, and sealed to the building envelope's air barrier and interior and exterior finishes. The inlet should be carefully located on an outside wall to avoid the addition of contaminants or moisture into the return air system and must be placed a minimum of 10 feet away from sources of auto exhausts, clothes dryer exhaust, outside cooking facilities, laundry dryer vent, exhaust vent of heating units or bath and kitchen exhaust fan vents.	EA	

## Paints, Caulks and Sealants

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
5568	PREP and PAINT VACANT ROOM w/ NATURAL TRIM—LOW-VOC—GCI	<p>NOTE: REFER TO LEAD HAZARD CONTROL SPECIFICATIONS FOR VACANT STRUCTURES # 3507 - TRIM, WALL AND CEILING PAINT FILM STABILIZATION: WALL SURFACE PREPARATION: Using lead safe work practices, remove and dispose of all loose material and dust prior to installation of new materials. All cracked or loose plaster is to be repaired with a bedding coat of Durabond and fiberglass mesh tape. If plaster and lath boards are loose, re-secure or remove and replace with drywall patch. TRIM REPAIR: Repair all trim as necessary w/ A STAINABLE WOOD FILLER shaped and sanded to match existing cross sections exactly. Sanding of any surfaces contacting or adjoining a lead-based painted surface shall be done with appropriate procedures such as a HEPA filtered sanding vacuum or a wet sanding method.</p> <p>CEILINGS AND WALLS: Prime as necessary to seal stains, raw plaster, etc. Paint ceilings two coats in FLAT CEILING WHITE and walls in EGGSHELL OR SATIN finish cut-in neatly to trim and at all corners and edges.</p> <p>NATURAL TRIM AND DOORS: Clean and prep all trim. Rub down and remove all paint, marks, dirt etc. and blend finish in areas where it has been removed (gouges, etc.). Coat all trim using a combination stain/water-based polyurethane finish of natural or golden oak color. PAINTS: Use Sherwin-Williams or approved best grade paints and primers meeting the Green Seal G-11 Environmental Standard <a href="http://www.greenseal.org/certification/standards/paints.cfm">http://www.greenseal.org/certification/standards/paints.cfm</a>. All caulks and sealants must comply with regulation 8, rule 51, of the Bay Area Air Quality Management District <a href="http://www.baaqmd.gov/dst/regulations/rg0851.pdf">http://www.baaqmd.gov/dst/regulations/rg0851.pdf</a>. COLOR(S): Wall color selected by CM.</p>	RM	



5567	<p>PREP AND PAINT VACANT ROOM w/ PAINTED TRIM—LOW-VOC—GCI</p>	<p>NOTE: REFER TO LEAD HAZARD CONTROL SPECIFICATIONS FOR VACANT STRUCTURES # 3507 - TRIM, WALL and CEILING PAINT FILM STABILIZATION: WALL SURFACE PREPARATION: Using lead safe work practices, remove and dispose of all loose material and dust prior to installation of new materials. All cracked or loose plaster is to be repaired with a bedding coat of Durabond and fiberglass mesh tape. If plaster and lath boards are loose, re-secure or remove and replace with drywall patch.</p> <p>CEILINGS AND WALLS: Prime as necessary to seal stains, raw plaster, etc. Paint ceilings two coats in FLAT CEILING WHITE and walls in EGGSHELL OR SATIN finish cut-in neatly to trim and at all corners and edges.</p> <p>TRIM AND DOORS: Prep by deglossing painted trim prior to finish painting. Apply two coats LATEX SEMI-GLOSS paint to cover completely and uniformly. PAINTS: Use Sherwin-Williams or approved best grade paints and primers meeting the Green Seal G-11 Environmental Standard</p> <p><a href="http://www.greenseal.org/certification/standards/paints.cfm">http://www.greenseal.org/certification/standards/paints.cfm</a>. Adhesives must comply with Rule 1168 of the South Coast Air Quality Management District - <a href="http://www.aqmd.gov/rules/reg/reg11/r1168.pdf">http://www.aqmd.gov/rules/reg/reg11/r1168.pdf</a>. All caulks and sealants must comply with regulation 8, rule 51, of the Bay Area Air Quality Management District <a href="http://www.baaqmd.gov/dst/regulations/rg0851.pdf">http://www.baaqmd.gov/dst/regulations/rg0851.pdf</a>. COLOR(S): Wall color selected by CM. Trim to be WHITE unless otherwise specified.</p>	RM	
------	---	---	----	--

5677	PREP and PAINT EXTERIOR TRIM—LOW- VOC—GCI	<p>NOTE: REFER TO LEAD HAZARD CONTROL SPECIFICATIONS FOR VACANT STRUCTURES #5503 EXTERIOR TRIM PAINT FILM STABILIZATION: Using lead work safe practices, remove and properly dispose all loose materials prior to installation of new materials. Using lead work safe practices, prepare existing trim surfaces specified for stabilization prior to paint application by securing, replacing or repairing all loose, broken, rotted, or deteriorated materials to provide a sound surface for paint application. Prepare trim surfaces by removing all loose paint using lead work safe practices and according to paint manufacturer's recommendations. Use a 25-year or better paintable low-VOC caulk matched for color to fill all cracks, voids, holes, etc. prior to painting. Apply a compatible exterior low-VOC primer to all bare areas. Apply two coats of quality exterior LOW-VOC paint to specified trim. All paints and primers must meet the Green Seal G-11 Environmental Standard <a href="http://www.greenseal.org/certification/standards/paints.cfm">http://www.greenseal.org/certification/standards/paints.cfm</a>.</p> <p>Adhesives must comply with Rule 1168 of the South Coast Air Quality Management District. All caulks and sealants must comply with regulation 8, rule 51, of the Bay Area Air Quality Management District <a href="http://www.baaqmd.gov/dst/regulations/rg0851.pdf">http://www.baaqmd.gov/dst/regulations/rg0851.pdf</a>. Match existing color as close as possible. All work to be done in a neat and professional manner. Use care to protect all surfaces not intended for paint coverage.</p>		
2351	FLOOR— REFINISH WOOD LOW- VOC—GCI	<p>Counter sink all nails and fill holes. Drum sand and edge floor finishing with 120-grit sandpaper. Vacuum and tack rag room. Apply a coat of Minwax Water-Based Polyurethane Base Coat followed by 3 coats of Minwax Water-Based Polyurethane for Floors, or a floor finish that complies with regulation 8, rule 51, of the Bay Area Air Quality Management District <a href="http://www.baaqmd.gov/dst/regulations/rg0851.pdf">http://www.baaqmd.gov/dst/regulations/rg0851.pdf</a> and may not exceed 250 grams of VOC per liter of coating as thinned to the manufacturer's maximum recommendation, excluding the volume of any water, exempt compounds, or colorant added to the tint bases.</p>		

## Carpet and Pad

Spec #	Spec Title	Spec Description	Unit of Measure	Unit Cost
5971	CARPET (BERBER) and PAD—GREEN LABEL—GCI	Install FHA approved, Nylon/Olefin blend Berber weave carpet. Install over a matched 1/2" medium density rebond pad w/ a minimum of seams. Carpet and Pad must meet the Carpet and Rug Institute's Green Label certification. Stretch carpet to eliminate puckers, scallops and ripples. Include tackless strips, metal edge strips and mending tape to cover entire floor including closets. Use same carpet in all locations specified. ALLOWANCE: Carpet and pad \$14.00/sy.	SF	
5972	CARPET (CUT PILE) and PAD—GREEN LABEL—GCI	Install FHA approved, Nylon/Olefin blend cut pile weave carpet. Install over a matched 1/2" medium density rebond pad w/ a minimum of seams. Carpet and Pad must meet the Carpet and Rug Institute's Green Label certification. Stretch carpet to eliminate puckers, scallops and ripples. Include tackless strips, metal edge strips and mending tape to cover entire floor including closets. Use same carpet in all locations specified. ALLOWANCE: Carpet and pad \$14.00/sy. See GCI Criteria GC 7-4.	SF	

## HVAC and Domestic Hot Water

6041	FURNACE 90+ GAS – REPLACE— GCI	<p>Use the Air Conditioning Contractors of America (ACCA) 8th Edition of their Manual J Heat loss calculation tool <a href="http://www.acca.org/tech/manualj/">http://www.acca.org/tech/manualj/</a> and use ACCA's Manual S for equipment selection. NOTE: Provide both Manual J and S reports with first Draw documents. Size furnace to the living unit considering any areas which may be added or subtracted from the plan.</p> <p>Remove existing furnace and dispose of in legal dump. FURNACE: install a 90+ gas-fired, forced-air furnace with minimum AFUE rating of 92% on 2" patio block to existing duct work and gas line. New furnace will have minimum limited warranties of: 20 years on heat exchangers; 5 years on parts. Include auto set back thermostat controls, flue pipe and new shut-off valve. Rework cold air return if necessary to ensure easy access, good fit and easy replacement of air filter. Seal all exposed duct joints as a part of this item with duct mastic. Remove all existing cloth duct tape prior to installing mastic.</p>	EA	
7071	HWH - 90+ 40-GAL GAS- POWER VENTED— GCI	<p>Replace the existing HWH with a 40-gallon, glass-lined, 90+ efficient power-vented, insulated to R7, gas water heater with a 10-year warranty. Include pressure and temperature relief valve, discharge tube to within 6" of floor, condensate pump, owner's manual and all duct work to power vent to exterior. Provide separate electrical circuit and new gas piping from shut-off valve to fixture. If the HWH is located in a basement with a floor drain, the discharge tube shall be directed to the drain. If it is located on an upper floor or if there is no floor drain, install a catch pan drained to the exterior.</p>	EA	
7072	HWH— TANKLESS— GCI	<p>Replace existing HWH with a gas-fired, closed combustion, tankless water heater with a minimum 7 gallon per minute flow rate. Include pressure and temperature relief valve, discharge tube to within 6" of floor, owner's manual and all venting piping. Provide separate electrical circuit and gas inlet and water inlet and outlet shut-off valves. If the HWH is located in a basement with a floor drain, the discharge tube shall be directed to the drain. If it is located on an upper floor or if there is no floor drain, install a catch pan drained to the exterior.</p>		
6415	CLOTHES DRYER VENT—GCI	<p>Install 4" rigid aluminum vent tubing from the specified dryer location to a 4" wall-mounted dryer vent hood with a back-flow preventer and NO screening. Do not fasten with nails, screws or other fasteners that protrude into the interior of the exhaust duct. Seal all seams in the system with duct mastic or aluminum foil tape, not duct tape. Secure duct and hood to framing.</p>	EA	

6337	DUCT SEALING— GCI	Seal joints, collars, flex duct connections and seams in ductwork and plenums with fiberglass mesh and a 1/16" coating of duct mastic (about the thickness of a nickel).	LF	
6339	RETURN AIR TRANSFER GRILL 12X6— GCI	Install a Tamarack Return Air Pathway (RAP) 12.6 (12" x 6") Sound and light restricted by-pass grill to air balance forced-air system - <a href="http://www.tamtech.com">www.tamtech.com</a> . Install in stud cavity between specified room and common space to provide return air. Seal to wall finish and install flange trim.	EA	
6340	RETURN AIR TRANSFER GRILL 12X12— GCI	Install a Tamarack Return Air Pathway (RAP) 12.12 (12" x 12") Sound and light restricted by-pass grill to air balance forced-air system - <a href="http://www.tamtech.com">www.tamtech.com</a> . Install in stud cavity between specified room and common space to provide return air. Seal to wall finish and install flange trim.	EA	
6244	BOILER— HIGH EFFICIENCY— GAS REPLACE— GCI	Replace existing boiler with a Utica UB95M-200 Gas Fired, modulating, direct vent, hot water boiler. Install boiler, connected to the distribution piping and baseboard convectors that service the entire house. Installation to include all power and control wiring, a set back thermostat, expansion tank, one circulation pump, water and gas supply and flue piping. The installation is required to maintain a minimum 70 F indoor temperature when outdoor temperature is -10 F. Min. AFUE rating 95.	EA	
6246	BOILER— HIGH EFFICIENCY— GAS REPLACE COMPLETE— GCI	Replace existing boiler and distribution system with a Utica UB95M-200 Gas Fired, modulating, direct vent, hot water boiler including distribution piping and baseboard convectors to service entire house. Installation to include all power and control wiring, a set back thermostat, expansion tank, one circulation pump, water and gas supply and flue piping. The installation is required to maintain a minimum 70 F indoor temperature evenly throughout the conditioned space when outdoor temperature is -10 F. Min. AFUE rating 95.	EA	
6247	BOILER— HIGH EFFICIENCY— W/ INDIRECT HWH— GCI	Replace existing boiler with a Gas Fired, modulating, direct vent, hot water boiler. Install boiler, connected to the distribution piping and baseboard convectors that service the entire house. Installation to include all power and control wiring, a set back thermostat, expansion tank, one circulation pump, water and gas supply and flue piping. The installation is required to maintain a minimum 70 F indoor temperature when outdoor temperature is -10 F. Min. AFUE rating 93. Install an indirect fired, 40-gallon water tank as a separate zone on the boiler with a maximum heat loss rating of 1° per hour.	EA	

## Kitchen Cabinets

3716	CABINET - WOOD BASE— PLYWOOD— GCI	Install base cabinets constructed of solid hardwood face-frames, doors and draw fronts with ½" plywood carcasses and floors. Drawer boxes shall be plywood, joined using metal or plastic corner bracing. Install bright brass or brushed chrome knobs and pulls on all doors and drawers even when routed finger grooves exist. CM will choose style and finish from those available in line proposed by contractor.	LF	
3726	CABINET – WOOD WALL— PLYWOOD— GCI	Remove and dispose off site all existing upper cabinets, counters, ledgers, etc. NOTE: Upper cabinets will be either: a) 42" installed to ceiling OR b) will be 36" trimmed with a stained oak crown, OR c) will be 36" with a trimmed drywall or plywood soffit. Install upper cabinets constructed of solid hardwood face-frames and doors with 1/2" plywood carcasses and floors. Carcasses will be joined using metal or plastic corner bracing. Install bright brass or brushed chrome knobs and pulls on all doors even when finger grooves exist. CM will choose style and finish from those available in line proposed by contractor.	LF	
3717	CABINET - WOOD BASE—LOW- VOC—GCI	Install base cabinets constructed of solid hardwood face-frames, doors and draw fronts. Drawer boxes shall be plywood. Carcasses will be joined using metal or plastic corner bracing. All particleboard components shall meet ANSI A208.1 for formaldehyde emission limits or all exposed particleboard edges shall be sealed with a clear low-VOC sealant or have a factory-applied sealant prior to installation. All MDF edges shall meet ANSI A208.2 for formaldehyde emission limits or all exposed MDF edges shall be sealed with a clear low-VOC sealant or have a factory-applied low-VOC sealant prior to installation. Install bright brass or brushed chrome knobs and pulls on all doors and drawers even when routed finger grooves exist. CM will choose style and finish from those available in line proposed by contractor.	LF	

3727	CABINET – WOOD WALL—LOW- VOC—GCI	Remove and dispose off site all existing upper cabinets, counters, ledgers, etc. NOTE: Upper cabinets will be either: a) 42" installed to ceiling OR b) will be 36" trimmed with a stained oak crown, OR c) will be 36" with a trimmed drywall or plywood soffit. Install upper cabinets constructed of solid hardwood face-frames and doors. Carcasses will be joined using metal or plastic corner bracing. All particleboard components shall meet ANSI A208.1 for formaldehyde emission limits or all exposed particleboard edges shall be sealed with a clear low-VOC sealant or have a factory-applied sealant prior to installation. All MDF edges shall meet ANSI A208.2 for formaldehyde emission limits or all exposed MDF edges shall be sealed with a clear low-VOC sealant or have a factory-applied low-VOC sealant prior to installation. Install bright brass or brushed chrome knobs and pulls on all doors even when finger grooves exist. CM will choose style and finish from those available in line proposed by contractor.	LF	
------	---	---	----	--

### Pest Control

8395	Integrated Pest Management - GCI	Do not use any insecticides. Use Integrated Pest Management methods to control pests. Seal all cracks, holes and crevices on interior surfaces and exterior surfaces to prevent access by pests. Use Stuff-it copper mesh by Do it Yourself Pest Control <a href="http://www.doyourownpestcontrol.com">http://www.doyourownpestcontrol.com</a> to plug larger holes prior to finishing with plaster or drywall. Do not use steel wool. Place a thin dusting of 98% boric acid under kitchen cabinets, in wall cavities, cracks and crevices in the kitchen.	DU	
------	---	---	----	--