

EarthCraft Multifamily New Construction Worksheet		Points	Planned	Status	Documentation
SITE PLANNING (SP)					
SP1: SITE SELECTION					
OPTIONAL AT ALL LEVELS					
SP 1.0 Type of site: 1. Brownfield site 2. Previously developed site 3. Infill site A. >50% B. >75%	Select all that apply:				Site Plan
	3				
	1	1			
	Select one:				
	1	2			
	2				
SP 1.1 Dwelling units per acre: 1 ≥ 15 dwelling units per acre 2 ≥ 20 dwelling units per acre 3 ≥ 25 dwelling units per acre	Select one:				Site Plan
	1				
	2	3			
	3				
SP 2: SITE DESIGN					
OPTIONAL AT ALL LEVELS					
SP 2.0 Connectivity to: 1. Walking distance to bus line (≤1/2 mile) A. Existing B. Planned	Select One:				Site Plan, Location
	2	2			
	1				
2. Walking distance to rail/rapid transit (≤1/2 mile) A. Existing B. Planned	Select One:				
	3				
	1				
3. Biking distance to bike path (≤1/2 mile) A. Existing B. Planned	Select One:				
	2	2			
	1				
4. Walking distance to public openspace or greenspace ≥3/4 acre in size (≤1/2 mile) A. Existing B. Planned	Select One:				
	2	2			
	1				
5. Walking distance to mixed uses (≤1/2 mile) A. 6 or more mixed uses B. 4 or more mixed uses	Select One:				
	2	2			
	1				
SP 2.1 Shade at least 50% of hardscape within 30' of building	2				Calculation
SP 2.2 Reduce light pollution - all exterior lights full cutoff	4				
SP 2.3 Permanent stormwater control: A. ≥25% of onsite impervious surface areas B. ≥50% of onsite impervious surface areas C. ≥75% of onsite impervious surface areas	Select one:				Calculation
	2				
	3	3			
	4				
SP 2.4 Street Trees are ≤ 40' on center at minimum	1				
SP 2.5 Connectivity to adjacent sites: 1. Vehicular access (2+ connections) 2. Dedicated pedestrian and bike access	Select all that apply:				
	1				
	1				
SP 2.6 Community Gardens	1				
SP 2.7 Outdoor Community gathering space	2				
SP 2.8 Install plant species that serve as pollinators on site for regional wildlife and/or local endangered species for a minimum of 20% of plantings	1	1			
SP 2.9 Parking reduced below local ordinance (1:1 ratio)	1	1			Local ordinance
SP 3: SITE PREPARATION AND PRESERVATION MEASURES					
REQUIRED AT ALL LEVELS					
SP 3.0 Workshop on erosion and sediment control	-	-			Certificate
SP 3.1 Site assessment identifying all greenspace and tree save potential	-	-			Greenspace/Tree survey
SP 3.2 Erosion and sedimentation control plan	-	-			E&S plan
SP 3.3 Do not install invasive plants on site	-	-			Plant list
SP 3.4 Comply with all federal, state, and local government erosion control and tree protection measures	-	-			
SP 3.5 Phase I environmental testing and remediation plan (if applicable)	-	-			Phase I
SP 3.6 On-call personnel designated for erosion control during rain events	-	-			Contact Person
SP 3.7 Downstream water quality testing (if applicable)	-	-			Test data
SP 3.8 Label all storm drains or storm inlets to discourage dumping of pollutants	-	-			Photographs
SP 3.9 Road/vehicle cleaning protocols posted and enforced	-	-			Photographs
OPTIONAL AT ALL LEVELS					
SP 3.10 Tree preservation and protection measures employed on site	2				Site plan
SP 3.11 Leave site undisturbed and protect greenspace from future development (min 25%)	2				Site plan
SP 3.12 Mill cleared logs (100%)	1				Contract
SP 3.13 Grind stumps and limbs for mulch (≥80%)	1				Photographs
SP 3.14 Tree planting (12 trees per acre; trees ≥ 2" diameter)	2				Site plan
SP 4: ALTERNATIVE TRANSPORTATION ACCOMODATIONS					
OPTIONAL AT ALL LEVELS					
SP 4.0 Bike racks	1	1			
SP 4.1 Covered bike storage facility	1	1			
SP 4.2 Tenant access to business center	1				
SP 4.3 Covered bus stop	2	2			
SP 4.4 Electric vehicle charging facility	2	2			
SITE PLANNING TOTAL		23		0	
CONSTRUCTION WASTE MANAGEMENT (CW)					
REQUIRED AT ALL LEVELS					
CW 1.0 No construction materials burned or buried on site	-	-			
CW 1.1 Only state-approved landfills may be utilized	-	-			
OPTIONAL AT ALL LEVELS					
CW 1.2 Post waste management plan and divert 75% from landfill of: 1. Wood 2. Cardboard	Select all that apply:				Waste mgmt. plan, pick up tickets
	2	2			
	1	1			

EarthCraft Multifamily New Construction Worksheet

3. Metal (including beverage containers)	1	1		
4. Drywall (recycle or grind and spread on site)	2	2		
5. Plastic (including beverage containers)	1			
6. Shingles	2			
CW 1.3 Central Cut Area	2			
CW 1.4 Previously developed site: divert ≥25% of demolition waste from landfill	2			
CONSTRUCTION WASTE MANAGEMENT TOTAL		6	0	
RESOURCE EFFICIENCY (RE)				
RE 1: RESOURCE EFFICIENT DESIGN				
REQUIRED AT ALL LEVELS				
RE 1.0 Limit framing at all windows and doors	-	-		
RE 1.1 Engineered roof framing (90%)	-	-		
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED				
RE 1.2 Advanced Framing:	Select all that apply:			
1. 2-stud corners where structurally feasible	3	3		
2. Ladder T-walls where structurally feasible	2	2		
3. Size headers for loads (non-structural headers in non-load bearing walls)	1	1		
OPTIONAL AT ALL LEVELS				
RE 1.3 Average floor area of unit:	Select one:			
A. < 800 square feet	2			
B. 800-1100 square feet	1	1		
RE 1.4 Floor joists are 24" on center (≥80%)	1	1		
RE 1.5 Non-load bearing wall studs are 24" on center	1	1		
RE 2: ADVANCED FRAMING PRODUCTS				
OPTIONAL AT ALL LEVELS				
RE 2.0 Precast insulated foundation walls (≥90%)	2			
RE 2.1 Insulated concrete forms or precast autoclaved aerated concrete (≥90%):	Select all that apply:			
1. Foundation walls	2			
2. Exterior walls	3			
RE 2.2 Engineered wall framing (≥90%)	1			
RE 2.3 Deliver panelized construction or SIPs to the site pre-framed (≥90%):	Select all that apply:			
1. Floors	2			
2. Exterior walls	2			
3. Roof	2			
4. Modular construction	2			
RE 2.4 Structural headers are steel or engineered wood (≥90%)	2			
RE 3: LOCAL, RECYCLED AND/OR NATURAL CONTENT MATERIALS				
OPTIONAL AT ALL LEVELS				
RE 3.0 Use recycled concrete or alternate material as aggregate in foundation	1			Product literature
RE 3.1 Replace ≥25% of cement in concrete with fly ash or slag:	Select all that apply:			
1. Slab and/or foundation walls (100%)	1			Product literature
2. Exterior cladding and trim (≥75%)	1			
RE 3.2 Lumber/Millwork/Flooring: Use No Tropical Wood	2	2		Product literature
RE 3.3 Use building materials extracted, processed and manufactured ≤500 miles from site (1 point per product maximum 5 points)	1-5			
RE 3.4 Reused, recycled, MDF with no added urea-formaldehyde, local species or FSC certified wood in all:	Select all that apply:			
1. Cabinet faces	2			
2. Countertops	2			
RE 3.5 Exterior cladding and trim (≥25% recycled content material on ≥75% area)	2			Product literature
RE 3.6 Insulation (≥25% recycled content material)	1			Product literature
RE 3.7 Flooring:	Select all that apply:			
1. Cork, natural linoleum, sealed concrete or bamboo flooring (≥20% of total floor area)	2			
2. Recycled content tiles (≥30% recycled content material on 100% of tile floor area)	2	2		
3. Carpet (≥50% recycled content material on ≥50% of all carpeted floor area)	1			
4. Biodegradable carpet and backing (≥50% of all carpeted floor area)	2			
RE 3.8 Engineered trim:	Select all that apply:			
1. Interior (≥80%)	1			Product literature
2. Exterior, including soffit, fascia and trim (≥75%)	1	1		
RE 3.9 Roofing material (≥50% recycled content material on ≥90% area)	2			Product literature
RE 4: BUILDING REUSE				
RE 4.0 Gut Rehab (project exposing wall cavities or removing exterior cladding) or Adaptive Reuse (for adaptive reuse see addendum to worksheet)	8			
RESOURCE EFFICIENCY TOTAL		14	0	
DURABILITY AND MOISTURE MANAGEMENT (DU)				
DU 1: PRODUCTS AND APPLICATIONS				
REQUIRED AT ALL LEVELS				
DU 1.0 All roof valleys direct water away from walls, dormers, chimneys, etc.	-	-		
DU 1.1 Install drainage plane per manufacturer's specifications	-	-		
DU 1.2 Integrate drainage plane with:	All must comply:			
1. Window and door pan flashing at sills and side flashing	-	-		
2. Window and door head/top flashing	-	-		
DU 1.3 Double layer of building paper or house wrap behind cementitious stucco, stone veneer or synthetic stone veneer on framed walls	-	-		
DU 1.4 Roof gutters discharge water ≥5' from foundation	-	-		
DU 1.5 Flashing:	All must comply:			
1. Self-sealing bituminous membrane or equivalent at valleys and roof deck penetrations	-	-		
2. Step and kick-out flashing at wall/roof and wall/porch intersections, flashing ≥4" on wall surface and integrated with wall and roof/deck/porch drainage planes	-	-		
DU 1.6 Continuous foundation termite flashing (Required if slab edge is insulated)	-	-		
DU 1.7 Maintain 2" clearance between wall siding and roof surface	-	-		

DU 1.8	Install air conditioner condensing unit pad	-	-		
DU 1.9	Roof drip edge with ≥1/4" overhang	-	-		
DU 1.10	Drain pan for water heaters and washing machines	-	-		
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED					
DU 1.11	Enclosed crawlspace, if applicable to design	2			
DU 1.12	Moisture-resistant wallboard in bathrooms	2	2		
DU 1.13	Flashing at bottom of exterior walls integrated with drainage system	2			
OPTIONAL AT ALL LEVELS					
DU 1.14	Alternative termite treatment with no soil pretreatment	2			
DU 1.15	Non-toxic pest treatment:	Select all that apply:			
	1. All lumber in contact with foundation (≥36" above foundation)	1			
	2. All lumber	2			
	3. Mold inhibitor with warranty applied to all lumber	1			
DU 1.16	Vented rain screen behind exterior cladding	2			
DU 1.17	Install termite mesh system	3			
DU 1.18	Exterior cladding (≥75% facade) with ≥ 30-year warranty	2			Warranty
DU 1.19	Windows, doors and skylights with ≥25-year warranty	1			Warranty
DU 1.20	Insulate cold water pipes ≥R-2	1			
DU 1.21	All entrance doors have overhang ≥3' depth	1			
DU 1.22	Roofing warranty:	Select one:			
	A. ≥40-year	1			
	B. ≥50-year	2			
DU 2: MOISTURE MANAGEMENT					
REQUIRED AT ALL LEVELS					
DU 2.0	Gravel bed (57's, no fines) beneath sub-grade slabs, on grade slabs, or raised slabs	-	-		Photographs
DU 2.1	100% coverage of ≥6mil vapor barrier beneath all slabs, in all crawlspaces	-	-		Photographs
DU 2.2	Foundation drain on top of sub-grade footing	-	-		
DU 2.3	Patio slabs, walks and driveways sloped ≥1/4" per 1' away from building for ≥10' or to the edge of the surface, whichever is less	-	-		
DU 2.4	Final site grade sloped ≥1/2" per 1' away from home for ≥10' or to the edge of the site, whichever is	-	-		
DU 2.5	Do not install wet or water-damaged building materials	-	-		
DU 2.6	Capillary break between foundation and framing at exterior walls	-	-		
DU 2.7	Drainage board and damp proofing for below-grade walls	-	-		
DU 2.8	Design for additional dehumidification: rough-in electrical and plumbing for dehumidifier	-	-		
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED					
DU 2.9	Additional dehumidification system: Basement or sealed crawlspace system	2			
DU 2.10	Foundation drain at outside perimeter edge of footing surrounded with 6" clean gravel and fabric filter	2	2		Photographs
OPTIONAL AT ALL LEVELS					
DU 2.11	Install whole-house ENERGY STAR dehumidifier	4			Product literature
DU 2.12	Slab and crawlspace vapor barrier ≥10 mil or reinforced	1	1		Photographs
DU 2.13	Humidistat or thermidistat used with whole-house variable speed cooling system	2			Product literature
DU 2.14	Capillary break:	Select all that apply:			
	1. Between ground/footing or footing/foundation	2			
	2. Between foundation and framing for all walls	1	1		
DURABILITY AND MOISTURE MANAGEMENT TOTAL			6	0	
INDOOR AIR QUALITY (IAQ)					
IAQ 1: COMBUSTION SAFETY					
REQUIRED AT ALL LEVELS					
IAQ 1.0	No unvented combustion fireplaces, appliances, or space heaters	-	-		
IAQ 1.1	All fireplaces have outdoor combustion air supply and masonry-built fireplaces have gasketed doors	-	-		
IAQ 1.2	No atmospherically vented water heaters or furnaces	-	-		
IAQ 1.3	Sealed-combustion or electric water heater, must be installed in conditioned space	-	-		
IAQ 1.4	Carbon monoxide detector required if combustion appliances exist	-	-		
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED					
IAQ 1.5	If installed, all fireplaces meet indoor air quality guidelines and have gasketed doors	2			Product literature
IAQ 2: INDOOR POLLUTANT CONTROL					
REQUIRED AT ALL LEVELS					
IAQ 2.0	Protect all ducts until construction is complete	-	-		
IAQ 2.1	Filter(s) easily accessible for property maintenance to service	-	-		
IAQ 2.2	Provide rodent and corrosion proof screens with mesh ≤0.5" for all openings not fully sealed or	-	-		
IAQ 2.3	All outdoor supply air crosses filter prior to distribution	-	-		
IAQ 2.4	All interior paints are ≤ 100g/L VOC content	-	-		Product literature
IAQ 2.5	No carpet in below grade units	-	-		
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED					
IAQ 2.6	Filters are ≥ MERV 8	1	1		Product literature
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED					
IAQ 2.7	Certified low or no VOC materials:	Select all that apply:			
	1. Interior paints	1	1		
	2. Stains and finishes on wood floors	2	2		
	3. Sealants and adhesives	2	2		
	4. Carpet	1	1		
	5. Carpet pad	1	1		
	6. Carpet pad adhesive	2	2		
IAQ 2.8	Protect all bath fans until floor/wall finishing is complete	1	1		
OPTIONAL AT ALL LEVELS					
IAQ 2.9	No added urea-formaldehyde:	Select all that apply:			
	1. Insulation	1	1		Product literature
	2. Subfloor	1			
	3. All cabinets, shelves, and countertops	2	2		
IAQ 2.10	Seal all particle board surfaces with water-based sealant	1			
IAQ 2.11	No carpet in all units	3			

EarthCraft Multifamily New Construction Worksheet

IAQ 2.12	No carpet in main living area of all units	1	1	
IAQ 2.13	Permanent walk-off mats installed at main entrances	1	1	
INDOOR AIR QUALITY TOTAL		16	0	
HIGH PERFORMANCE BUILDING ENVELOPE (BE)				
REQUIRED AT ALL LEVELS				
BE 0.1	IECC adopted by jurisdiction plus applicable state amendments	-	-	
BE 0.2	Certified level projects must achieve a confirmed HERS Index \leq 75	-	-	
BE 0.3	Gold and Platinum level projects must achieve a confirmed HERS Index \leq the ENERGY STAR Multifamily New Construction Target HERS Index (Adaptive Reuse Project must follow Adaptive Reuse	-	-	
OPTIONAL AT ALL LEVELS				
BE 0.4	Confirmed HERS Index \leq Zero Energy Ready Home Target HERS Index	5		
BE 1: AIR SEALING MEASURES				
REQUIRED AT ALL LEVELS - DESIGN FOR UNIT COMPARTMENTALIZATION				
BE 1.0	Vapor barriers installed under slabs and crawls only and not on any vertical surfaces	-	-	
BE 1.1	Seal bottom plates to subfloor or foundation for entire unit envelope	-	-	
BE 1.2	Block and seal joists cavities:	All must comply:		
	1. Above supporting walls at cantilevered floors	-	-	
	2. Under attic kneewalls	-	-	
	3. Above attached garage walls	-	-	
BE 1.3	Block stud cavities at change in ceiling height	-	-	
BE 1.4	Install blocking and baffles in insulated and vented attics	-	-	
BE 1.5	Seal penetrations through:	All must comply:		
	1. Foundations and exterior wall assemblies	-	-	
	2. Top and bottom plates	-	-	
	3. Band and rim joists	-	-	
	4. Insulated subfloor	-	-	
	5. Sheathing	-	-	
	6. Walls and ceilings in attached garages	-	-	
	7. All ceilings	-	-	
BE 1.6	Seal penetrations around:	All must comply:		
	1. Shower, sinks, toilets and tub drains	-	-	
	2. HVAC supply and return boots sealed to subfloor or drywall (floor, walls, or ceilings)	-	-	
	3. Window and door rough openings	-	-	
	4. All drywall penetrations (common walls between attached units included)	-	-	
	5. Exhaust fans to drywall	-	-	
	6. Attic pull-down stairs, scuttle holes and kneewall doors	-	-	
	7. Chases	-	-	
BE 1.7	Seal seams and gaps in:	All must comply:		
	1. Band joist sheathing	-	-	
	2. Exterior wall sheathing	-	-	
	3. All seams in SIP's	-	-	
BE 1.8	Install rigid air barriers:	All must comply:		
	1. Behind tubs and showers on insulated walls	-	-	
	2. At attic kneewall on attic-side (including skylight shafts)	-	-	
	3. At chases in contact with the building envelope (including fireplace chases)	-	-	
	4. Along staircases on insulated walls	-	-	
	5. Along porch roofs	-	-	
	6. At dropped ceiling/soffit	-	-	
	7. At all band joists above unit separation walls	-	-	
BE 1.9	Install weather-stripping at:	All must comply:		
	1. All exterior doors (if not included in door assembly)	-	-	
	2. Attic kneewall doors, scuttle holes and pull down stairs	-	-	
BE 1.10	All recessed can lights must be air tight, gasketed at all floors and also IC-rated in insulated ceilings; in Climate Zone 4, insulate exterior surface of fixture to \geq R-10	-	-	
BE 1.11	Fire rated assemblies that do not use draft block in band areas must comply with Air Tight Drywall	-	-	
BE 1.12	Units adjacent to CMU walls: framing and sub-floor at unit envelope, including interstitial space, must be sealed to CMU	-	-	
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED				
BE 1.13	Seal top plate to drywall at the attic level	2	2	
OPTIONAL AT ALL LEVELS				
BE 1.14	Comply with Air tight drywall approach (required if band area draft blocking is not used)	4		
BE 1.15	Gypcrete on all framed floors separating unit envelopes	1	1	
BE 1.16	Two pour application of gypcrete to include areas blocked by drywall	1		
BE 1.17	Firewalls/party walls that eliminate air gap (UL-U370 or equivalent)	2		
BE 2: BLOWER DOOR TEST				
REQUIRED AT ALL LEVELS				
BE 2.0	Air Changes per Hour \leq 5 ACH50	-	-	
OPTIONAL AT ALL LEVELS				
BE 2.1	Air Changes per Hour \leq 4 ACH50	7		
BE 2.2	Air Changes per Hour \leq 3 ACH50	10		
BE 3: INSULATION				
REQUIRED AT ALL LEVELS				
BE 3.0	Floors:	All must comply:		
	1. Framed \geq R-19	-	-	
	2. Cantilevered \geq R-30	-	-	
	3. Podium/Elevated Slab \geq R-19	-	-	
BE 3.1	Walls:	All must comply:		
	1. Exterior walls and band joists \geq R-15	-	-	
	2. Elevator walls adjacent to dwelling units \geq R-13	-	-	
	3. Foundation walls \geq R-10 continuous or \geq R-13 cavity	-	-	
BE 3.2	Ceilings/Roof:	All must comply:		

EarthCraft Multifamily New Construction Worksheet

1. Vented: Climate Zone 4 ≥ R-49	-	-	
2. Continuous Roof Deck: Climate Zone 4 ≥ R-30	-	-	
3. Cathedral: Climate Zone 4 ≥ R-38	-	-	
BE 3.3 Attic/Roof:	All must comply:		
1. Install wind baffles at eaves in every vented bay, or equivalent air barrier at edge of ceiling	-	-	
2. Energy heel trusses or raised top plate	-	-	
3. Attic platforms allow for full-depth insulation below	-	-	
BE 3.4 Attic kneewall:	All must comply:		
1. Doors ≥ R-19	-	-	
2. Insulation and attic-side air barrier ≥ R-19	-	-	
BE 3.5 Attic pull-down/scuttle hole ≥ R-49	-	-	
BE 3.6 When installing loose-fill attic insulation, card and rulers must be installed	-	-	
BE 3.7 Steel framed buildings require thermal break ≥ R-7.5	-	-	
BE 3.8 Grade II insulation quality at all building envelope locations	-	-	
BE 3.9 Slab edge insulation ≥ R-10	-	-	
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED			
BE 3.10 Insulation installation quality (floors, walls and ceilings):	Select one:		
A. Grade I	3	2	
B. Grade II with insulated sheathing ≥ R-3 (100%)	2		
BE 3.11 Corners ≥ R-6	1	1	
BE 3.12 Headers ≥ R-3	1	1	
BE 3.13 Fiberglass batts are unfaced/friction fit	1	1	
OPTIONAL AT ALL LEVELS			
BE 3.14 Insulate with foam:	Select all that apply:		
1. Exterior walls including band area	4		
2. Floor system over crawlspace, basement, or parking garage	2		
BE 3.15 Walls:	Select all that apply:		
1. Seal and insulate crawlspace walls ≥ R-10 continuous	2		
2. Insulate unfinished basement walls instead of ceiling	1		
3. Insulate basement walls with continuous insulation	2		
4. Insulate exterior walls and band joist ≥ R-19	2		
5. Insulate with spray foam insulation: Flash and batt insulation including band area	2		
6. Insulate exterior walls and band joist ≥ R-20 or ≥ R-13 cavity plus R-5 insulated sheathing	3	3	
BE 3.16 Continuous exterior insulation:	Select one:		
1. ≥R-3	5	5	
2. ≥R-5	7		
BE 3.17 Ceilings:	Select one:		
1. Flat Vented: Climate Zone 4 ≥ R-60	2		
2. Continuous Roof Deck: Climate Zone 4 ≥ R-35	2	2	
3. Sloped: Climate Zone 4 ≥ R-49	2		
BE 3.18 Attic kneewall insulated ≥ R-22	2		
BE 4: WINDOWS			
REQUIRED AT ALL LEVELS			
BE 4.0 Door U-factors and SHGC:	All must comply:		
1. U-factor ≤0.35	-	-	
2. SHGC ≤ 0.30	-	-	
BE 4.1 Window U-factor and SHGC:	All must comply:		
1. U-factor ≤0.35	-	-	
2. SHGC ≤ 0.30	-	-	
BE 4.2 Skylight U-factor and SHGC:	All must comply:		
1. U-factor ≤0.55	-	-	
2. SHGC ≤ 0.30	-	-	
BE 4.3 NFRC certified doors, windows and skylights with label	-	-	
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED			
BE 4.4 Door U-factor:	Select all that apply:		
1. Opaque door: U factor ≤ 0.21	2	2	
2. Door with ≤ 50% glass: U-factor ≤ 0.27	1		
3. Door with > 50% glass: U-factor ≤ 0.32	1		
BE 4.5 Window U-factor and SHGC:	Select all that apply:		
1. U-factor ≤0.32	1	1	
2. SHGC ≤0.27	2	2	
BE 4.6 Skylight U-factor and SHGC:	Select all that apply:		
1. U-factor ≤0.50	1		
2. SHGC ≤0.27	2		
OPTIONAL AT ALL LEVELS			
BE 4.7 Window U-factor and SHGC:	Select all that apply:		
1. U-factor ≤0.25	2		
2. SHGC ≤0.24	3		
BE 4.8 Skylight U-factor and SHGC:	Select all that apply:		
1. U-factor ≤0.43	2		
2. SHGC ≤0.24	3		
BE 4.9 Glazing facing:	Select all that apply:		
1. West ≤ 2% of floor area	1		
2. East ≤ 3% of floor area	1		
BE 4.10 1.5' overhangs over ≥80% of south windows	1		
BE 4.11 Solar shade screens (min all east and west windows)	2		
BE 4.12 Modeled passive solar design (25% load reduction)	4		
BE 4.13 Window area is ≤15% of conditioned floor area (all units)	2		
BE 5: ROOF			
REQUIRED AT GOLD, OPTIONAL AT CERTIFIED			
BE 5.0 If Ducts located in unconditioned attic:	Select one:		

Product literature

EarthCraft Multifamily New Construction Worksheet

A. Attic Side Radiant Barrier	2	2		Product Literature
B. ENERGY STAR qualified roof (≥75% of total roof area)	2			
OPTIONAL AT ALL LEVELS				
BE 5.1 Install green roof system:	Select one:			
A. ≥ 20% of roof area	2			
B. ≥ 40% of roof area	3			
C. ≥ 60% or above	4			
HIGH PERFORMANCE BUILDING ENVELOPE TOTAL	25		0	
ENERGY EFFICIENT SYSTEMS (ES)				
ES 1: HEATING AND COOLING EQUIPMENT				
REQUIRED AT ALL LEVELS				
ES 1.0 Size and select all HVAC equipment in accordance with ACCA Manuals J and S:	All must comply:			Load Calculations
1. Complete Room by Room load calculation utilizing ACCA Manual J 8th Edition Software or later or current ASHRAE based software (Trane Trace or Carrier HAP) and submit to EarthCraft for review prior to issuing construction drawings. Loads must include detailed inputs.	-	-		
2. Based on worst case unit orientation per unit type	-	-		
3. Use 2009 ASHRAE Handbook of Fundamentals Climate Design Information or later for outdoor design temperatures	-	-		
4. Indoor temperatures 70°F for heating and 75° for cooling	-	-		
5. Base infiltration on project team selected infiltration goal	-	-		
6. Use actual area, U-factor and SHGC for windows and doors, actual area and R-values of floors, walls, and ceilings	-	-		
7. Base mechanical ventilation on ASHRAE 62.2- 2010 standard	-	-		
8. Cooling equipment and/or single-stage heat pump between 95%-125%	-	-		
9. Provide OEM data for each unique system type	-	-		
10. Internal loads that reflect design and occupancy ≤2400 Btu/h	-	-		
ES 1.1 If programmable thermostat installed for heat pump, include adaptive recovery technology	-	-		Product literature
ES 1.2 AHRI performance match all indoor/outdoor coils	-	-		AHRI Certificate
ES 1.3 Non-CFC and non-HCFC refrigerant	-	-		
ES 1.4 No electric resistant heat as primary heat source or reheat	-	-		
ES 1.5 Heat pump efficiency ≥ 8.2 HSPF or equivalent COP	-	-		
ES 1.6 Furnace efficiency ≥ 90 AFUE	-	-		
ES 1.7 Cooling equipment ≥ 14 SEER or 11 EER	-	-		
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED				
ES 1.8 Heating equipment efficiency:	Select one:			AHRI match
A. ENERGY STAR qualified furnace(s) ≥95 AFUE and within 40% of load calculation	2	2		
B. ENERGY STAR qualified heat pump(s) ≥8.5 HSPF and within 25% of load calculation	2			
ES 1.9 Verification of proper refrigerant charge with subcooling deviation ±3°F or superheat deviation ±5°F	1	1		Test results
ES 1.10 ENERGY STAR qualified cooling equipment ≥SEER 15	2	2		
OPTIONAL AT ALL LEVELS				
ES 1.11 Use ACCA Approved Residential Load Calculation Software to produce loads	2			ACCA Approved Software
ES 1.12 Load Calculations comply with ES 1.0 at first submission (no revision required)	2			
ES 1.13 Variable speed blower	2	2		
ES 1.14 Ground-source heat pump(s) ≥ EER 17	3			
ES 1.15 ENERGY STAR qualified cooling equipment ≥ SEER 16	3			
ES 1.16 Heat pump efficiency ≥9.0 HSPF	2			
ES 1.17 Dual-stage compressors	3			
ES 1.18 Condenser units are spaced 2 feet apart	2	2		
ES 1.19 Variable Refrigerant/Mini-Split system utilized for primary heating and cooling	6			
ES 2: DUCTWORK / AIR HANDLER				
REQUIRED AT ALL LEVELS				
ES 2.0 Seal air handlers and duct systems with mastic	-	-		
ES 2.1 Code approved solid connector for all flex-to-flex connections	-	-		
ES 2.2 Fully duct all supply and return ducts	-	-		
ES 2.3 Duct insulation:	All must comply:			
1. ≥ R-6: Ducts in conditioned and interstitial spaces (between floors)	-	-		
2. ≥ R-8: Ducts in unconditioned space	-	-		
ES 2.4 No ducts in exterior walls or vaulted ceilings and no plenum within 2' of roofline.	-	-		
ES 2.5 Locate all air handlers within conditioned space	-	-		
ES 2.6 Indoor coil protected until finished floor installed	-	-		
ES 2.7 Minimize pressure imbalance within units ≤ 6 Pa between bedroom and return	-	-		
ES 2.8 No duct take-offs within 6" of supply plenum or supply trunk cap	-	-		
ES 2.9 Design and construct mechanical closets accessible for service and maintenance requirements	-	-		
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED				
ES 2.10 Install ducts per ACCA Manual D duct design	3	3		Manual D
ES 2.11 Minimize pressure imbalance within units:	Select all that apply:			
1. Install fully ducted jumper ducts, transfer grills, or dedicated return for each bedroom	2	2		
2. Measured pressure differential ≤ 3 Pa between bedroom and return	3	3		Test results
ES 2.12 Install rigid duct work or pull all flex ducts with no pinches and support at intervals ≤ 5'	2	2		
ES 2.13 Measure and balance airflow for each duct run (±20% of design)	3	3		
ES 2.14 Verify supply and return duct static pressure	2	2		
ES 2.15 HVAC system and ductwork is dry and clean	1	1		
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED				
ES 2.16 Locate entire duct system within conditioned space	5	5		
OPTIONAL AT ALL LEVELS				
ES 2.17 Duct design and installation:	Select all that apply:			
1. Rigid metal supply trunk	2	2		
2. Space all supply duct take-offs ≥6" apart	1	1		
3. Install rigid circular duct as supply plenum	2			
ES 2.18 Duct insulation in unconditioned spaces ≥R-10	1			
ES 2.19 Return plenum duct take-off free area is 120% of supply plenum duct take-off free area	2	2		

ES 3: DUCT LEAKAGE TEST RESULTS																								
REQUIRED AT ALL LEVELS																								
ES 3.0 Test duct leakage based on conditioned floor area (CFA): 1. Leakage to outside ≤ 4% 2. Total leakage ≤ 6%	All must comply:			Test results																				
	-	-																						
	-	-																						
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED																								
ES 3.1 Test duct leakage based on conditioned floor area (CFA): 1. Leakage to outside ≤ 2% 2. Total leakage ≤ 4%	Select all that apply:			Test results																				
	8																							
	8																							
ES 4: VENTILATION																								
REQUIRED AT ALL LEVELS																								
ES 4.0 Install exhaust fans in all bathrooms and duct to outside	-	-		Test results																				
ES 4.1 Gas kitchen range vented to exterior ≥100 cfm fan	-	-																						
ES 4.2 Outside air ventilation strategy complies with ASHRAE 62.2-2010	-	-																						
ES 4.3 When installed to achieve ES 4.2, design and install fresh air intakes: 1. ≥10' away from exhaust outlets, vehicle idling zones, parking garages 2. ≥ 2' above grade 3. When run to soffit the duct must be extended and affixed through the soffit vent 4. Fresh air duct may not be run to the roof 5. Fresh air shutoff may not be controlled by humidistat 6. Install rigid duct with insulation 7. All intakes must be ducted to exterior of building	All must comply:																							
	-	-																						
	-	-																						
	-	-																						
	-	-																						
	-	-																						
	-	-																						
ES 4.4 Seal seams of all intake and exhaust ducts with mastic	-	-																						
ES 4.5 Duct clothes dryers to outside	-	-																						
ES 4.6 No power roof vents	-	-																						
ES 4.7 Back-draft dampers for kitchen and bathroom exhaust	-	-																						
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED																								
ES 4.8 If installed, ceiling fans must be ENERGY STAR qualified (1/bedroom and 1 in living room)	1			Product literature																				
ES 4.9 ENERGY STAR bath fans with properly sized ductwork and measured airflow ≥50 cfm	2			Test results																				
ES 4.10 Electric kitchen range vented to exterior ≥ 100 cfm fan	3	3		Test results																				
ES 4.11 Verify outdoor air supply ventilation airflow test within +/- 20% of design values	2	2		Test results																				
ES 4.12 Install and label accessible ventilation controls, with override controls for continuously operating ventilation fans	1																							
ES 4.13 Supply/exhaust fans rated at ≤3 sones (intermittent) and ≤1 sone (continuous)	1	1																						
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED																								
ES 4.14 Radon resistant construction: 1. Passive, radon/soil gas vent system labeled on each floor 2. Radon test of building prior to occupancy	Select all that apply:																							
	1																							
	1	1																						
ES 4.15 Exhaust fan wired with light in bathroom	1																							
ES 4.16 Duct all exhaust fans with rigid duct	1	1																						
OPTIONAL AT ALL LEVELS																								
ES 4.17 Automatic (timer and/or humidistat) bathroom exhaust fan controls	2																							
ES 4.18 Energy recovery ventilator	3																							
ES 4.19 Vent storage room to outside	1																							
ES 5: WATER HEATER																								
REQUIRED AT ALL LEVELS																								
ES 5.0 Water Heater must be installed in conditioned space. If gas, direct vent	-	-		AHRI Certificate																				
ES 5.1 Heat trap on all storage water heaters	-	-																						
ES 5.2 Water heater efficiencies: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Tank Size</th> <th>Gas EF</th> <th>Electric EF</th> <th>Gas UEF</th> <th>Electric UEF</th> </tr> </thead> <tbody> <tr> <td>20- 55 gal</td> <td>0.65</td> <td>0.95</td> <td>0.61</td> <td>0.92</td> </tr> <tr> <td>55- 100 gal</td> <td>0.75</td> <td>1.97</td> <td>0.76</td> <td>2.03</td> </tr> <tr> <td>< 2 gal</td> <td>0.82</td> <td>0.93</td> <td>0.81</td> <td>0.91</td> </tr> </tbody> </table>	Tank Size	Gas EF	Electric EF		Gas UEF	Electric UEF	20- 55 gal	0.65	0.95	0.61	0.92	55- 100 gal	0.75	1.97	0.76	2.03	< 2 gal	0.82	0.93	0.81	0.91	-	-	
	Tank Size	Gas EF	Electric EF		Gas UEF	Electric UEF																		
	20- 55 gal	0.65	0.95	0.61	0.92																			
55- 100 gal	0.75	1.97	0.76	2.03																				
< 2 gal	0.82	0.93	0.81	0.91																				
ES 5.3 Pipe insulation on first 2'	-	-																						
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED																								
ES 5.4 High efficiency storage water heater: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Tank Size</th> <th>Gas EF</th> <th>Electric EF</th> <th>Gas UEF</th> <th>Electric UEF</th> </tr> </thead> <tbody> <tr> <td>≤55 gallon</td> <td>≥0.67</td> <td>≥2.00</td> <td>≥0.64</td> <td>≥2.00</td> </tr> <tr> <td>>55 gallon</td> <td>≥0.77</td> <td>≥2.20</td> <td>≥0.78</td> <td>≥2.20</td> </tr> </tbody> </table>	Tank Size	Gas EF	Electric EF	Gas UEF	Electric UEF	≤55 gallon	≥0.67	≥2.00	≥0.64	≥2.00	>55 gallon	≥0.77	≥2.20	≥0.78	≥2.20	Select one from chart:			AHRI Certificate					
	Tank Size	Gas EF	Electric EF	Gas UEF	Electric UEF																			
	≤55 gallon	≥0.67	≥2.00	≥0.64	≥2.00																			
>55 gallon	≥0.77	≥2.20	≥0.78	≥2.20																				
2																								
ES 5.5 Tankless gas water heater ≥ .90 EF or ≥ .87 UEF																								
OPTIONAL AT ALL LEVELS																								
ES 5.6 Type of water heater: A. Solar domestic (≥40% annual load based on unit demand) B. High efficiency tankless water heater (≥ .92 EF) with insulated buffer tank C. ENERGY STAR qualified heat pump hot water heater	Select one:			Product literature																				
	6																							
	4			AHRI Certificate																				
	4																							
ES 5.7 Hot water piping insulation ≥R-4 (100%)	2																							
ES 6: LIGHTING/APPLIANCES																								
REQUIRED AT ALL LEVELS																								
ES 6.0 High-efficacy lighting in 100% of all permanent fixtures	-	-		Product Literature																				
ES 6.1 If installed, ENERGY STAR dishwasher	-	-																						
ES 6.2 If installed, ENERGY STAR refrigerator	-	-																						
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED																								
ES 6.3 If installed, ENERGY STAR qualified clothes washer	2	2		Product literature																				
ES 6.4 If installed, high efficiency clothes dryer with moisture sensor (not applicable to commercial dryers)	2			Product literature																				
OPTIONAL AT ALL LEVELS																								
ES 6.5 Fixtures and bulbs: A. ENERGY STAR qualified compact fluorescent fixtures or LED bulbs (100%) B. Ballasted compact fluorescents or LED bulbs at all recessed light fixtures	Select one:																							
	2	2																						
	1																							

ES 7: COMMON AREA LIGHTING/APPLIANCES				
REQUIRED AT PLATINUM AND GOLD, OPTIONAL AT CERTIFIED				
ES 7.0	100% LED bulbs in all corridor/breezeway and all common spaces	2	2	
OPTIONAL AT ALL LEVELS				
ES 7.1	Control systems:	Select all that apply:		
	1. Automatic indoor lighting controls	2		
	2. Automatic outdoor lighting controls	2	2	
ES 7.2	High Efficiency Exterior Lighting:	Select all that apply:		
	1. Design to Reach IES guidelines: Lighting For Exterior Environments	2		
	2. Achieve 50% reduction based on Advanced Energy Design Guide (ASHRAE/IES)	1		
	3. High efficiency exterior lighting using 100% LED bulbs	2	2	
ES 7.3	High efficiency elevators	2		
ENERGY EFFICIENT SYSTEMS TOTAL			53	0
WATER EFFICIENCY (WE)				
WE 1: INDOOR WATER USE				
REQUIRED AT ALL LEVELS				
WE 1.0	Meet National Energy Policy Act low flow standards for all fixtures	-	-	
WE 1.1	Detect no leaks at any water-using fixture, appliance or equipment	-	-	
WE 1.2	Low-flow fixtures (units and common facilities):	Select all that apply:		
	1. WaterSense labeled toilet (≤1.28 avg. gal/flush)	-	-	
	2. WaterSense labeled urinal (≤0.5 gal/flush)	-	-	
	3. WaterSense lavatory faucet and accessories (≤1.5 gpm at 60 psi)	-	-	
	4. WaterSense labeled Showerhead (≤2.0 gpm)	-	-	
REQUIRED AT PLATINUM , OPTIONAL AT GOLD AND CERTIFIED				
WE 1.3	If installed, water treatment system NSF certified, ≥85% efficient	2		
WE 1.4	If installed, water softeners certified to NSF/ANSI Standard 44	2		
WE 1.5	Store ≤0.5 gal of water between water heater and fixture (not applicable to central systems)	2		Test results
WE 1.6	WaterSense labeled Showerhead (1.75 gpm)	1		Product literature
OPTIONAL AT ALL LEVELS				
WE 1.7	Toilet (≤1.1 avg. gal/flush)	2	2	
WE 1.8	Waterless urinals in common areas	2		
WE 1.9	Greywater system for toilet flushing	4		
WE 1.10	Rainwater harvest system for indoor water use	4		
WE 1.11	Unit water pressure ≤60 psi	2		
WE 1.12	Hot water demand ≤0.13 gal of water between loop and fixture and ≤2 gal of water in loop between water heater and furthest fixture (not applicable to central systems)	2		Test results
WE 2: OUTDOOR WATER USE				
REQUIRED AT ALL LEVELS				
WE 2.0	Cover all exposed soil with 2"-3" mulch layer	-	-	
WE 2.1	Irrigation system:	All must comply:		
	1. Must have rain sensor shutoff switch	-	-	
	2. Provide operating manual to property management	-	-	
	3. Provide irrigation system layout to property management	-	-	
WE 2.2	If installed, ornamental water features must recirculate water and serve beneficial use	-	-	
WE 2.3	Install plants to maintain distance ≥2' from home at maturity	-	-	Landscape plan
REQUIRED AT PLATINUM, OPTIONAL AT GOLD AND CERTIFIED				
WE 2.4	Landscape design:	Select one:		
	A. Turf ≤ 40% of landscaped area	2		Landscape plan
	B. Use WaterSense water budget tool to design landscape	2		Calculator
WE 2.5	Vegetate slopes exceeding 4:1	1	1	Landscape plan
WE 2.6	If installed, irrigation system is: (Max 4 points)	Select all that apply:		
	1. Design, install, and audit irrigation system by WaterSense Irrigation Partner with no leaks	2		
	2. Micro-irrigation system (e.g., drip irrigation) includes pressure regulator, filter and flush end assemblies	2		
	3. Distribution uniformity ≥65% lower quarter	2		
	4. Install sprinklers only on turfgrass, pop-up height ≥4"	1		
	5. Establish grow-in phase and post landscape seasonal water schedules at irrigation controller	2		
WE 2.7	Drought-tolerant/native landscaping turf and plants	1		Plant list
OPTIONAL AT ALL LEVELS				
WE 2.8	Test and amend soil	1		Test results
WE 2.9	Irrigation: (Max 5 points)	Select all that apply:		
	1. Greywater irrigation system	3		
	2. Rainwater irrigation system	3		
	3. Zone irrigation system for specific water needs in each planting area	2	2	
	4. Provide weather station or soil moisture sensor on irrigation system	2		
WE 2.10	Timer on exterior water spigots	1		
WATER EFFICIENCY TOTAL			5	0
EDUCATION AND OPERATIONS (EO)				
EO 1: EDUCATION				
REQUIRED AT ALL LEVELS				
EO 1.0	Provide property manager with project-specific owner's manual	-	-	Copy
OPTIONAL AT ALL LEVELS				
EO 1.1	Local recycling contact	1		Contact
EO 1.2	Community Recycling Facility	2	2	Picture
EO 1.3	Household hazardous waste resources	1		
EO 2: OPERATIONS AND MANAGEMENT				
REQUIRED AT ALL LEVELS				
EO 2.0	Provide all subcontractors with EarthCraft Multifamily worksheet	-	-	
OPTIONAL AT ALL LEVELS				
EO 2.1	Property Maintenance Staff representative attends design review and/or kick off meeting	1	1	
EO 2.2	Market EarthCraft Multifamily program	1		Signage

EarthCraft Multifamily New Construction Worksheet

EO 2.3	Provide pre-occupancy briefing for tenant	2			
EO 2.4	Project participates in post occupancy project debriefing	2			
EO 2.5	Environmental management and building maintenance guidelines for staff	2			Copy
EO 2.6	Landscape maintenance guide for maintenance and management personnel	2	2		
EO 3: THIRD PARTY PROGRAMS					
OPTIONAL AT ALL LEVELS					
EO 3.0	ENERGY STAR Multifamily New Construction	2	2		
EO 3.1	Indoor airPLUS	2			
EO 3.2	Qualify for WaterSense New Homes	1			
EO 3.3	EarthCraft Community Certification	3			
EO 3.4	EarthCraft Light Commercial for Community Center	2			
EO 3.5	EarthCraft Light Commercial Ready Spaces	1			
EO 3.6	Zero Energy Ready Home Certification	1			
EDUCATION AND OPERATIONS TOTAL			7	0	
INNOVATION (INV)					
OPTIONAL AT ALL LEVELS					
IN 1.0	On-site fuel cell or co-generation system	4			System design
IN 1.1	Solar-ready design	2			System design
IN 1.2	Wind and/or Solar electric system (10% of project requirements)	5			System design
IN 1.3	100% of stormwater kept on site and used for development operations	4			System design
IN 1.4	Common areas use solar and/or wind electric system (80% of demand)	4			System design
IN 1.5	Housing Affordability:		Select one:		
	A. ≥20% total units	1	2		
	B. ≥50% total units	2			
IN 1.6	Developer contracts for at least 12 months post construction energy monitoring	4	4		Unit Level Utility Data
IN 1.7	Project specific innovation points: builder submits specifications for innovative products or design features to EarthCraft prior to construction completion	TBD			
INNOVATION TOTAL			6	0	
WORKSHEET TOTAL			161	0	