

ITEM NO. 6A

**PRESENTATION BY BOB BROWN,
COMMUNITY DEVELOPMENT
DIRECTOR OF SAN RAFAEL**

**Planning Commission Meeting
December 8, 2009**

1 What is Green Building?

Green building is one of the fastest growing trends in the construction industry. It promotes a whole-systems approach to the planning, design, construction and operation of buildings. It offers substantial benefits to property owners, occupants and the entire community by:

- Reducing utility, maintenance and infrastructure costs
- Reducing water usage
- Improving construction quality and building longevity
- Protecting the health of workers and residents
- Reducing environmental impacts through efficient resource use and sustainably created products

2 Green Building Rating Systems

Over the past several years two principal green building rating systems have risen to the level of national and statewide standards – LEED® (Leadership in Energy and Environmental Design) and GreenPoint Rated. The benefit of these rating systems is that they have been developed with industry involvement, extensively tested and frequently updated. They train and certify green building designers or raters, which significantly simplifies implementation by local building divisions.

The European Union has endorsed a very rigorous green building standard called Passive House that focuses almost entirely on energy efficiency to the point of eliminating the need for furnace or air conditioning systems, even in northern European climates. Over 16,000 Passive House buildings have been certified over the past decade, and many European cities and countries have mandated its use for all new construction.

GreenPoint Rated is administered by Build It Green (BIG), located in Berkeley. Over 70 California cities have adopted green building regulations utilizing the GreenPoint Rated system. Over 445 professionals have been certified as Green Point Raters, including dozens in the North Bay, and are utilized as part of a project design team and verify the inclusion of green building features in the final building construction. Green Point Rated checklists are only available for residential projects. There are three checklists: New Home (Single Family) and New Home (Multi-Family) and Existing Home. The Existing Home system is devised for both major (Whole House) and minor (Elements) remodels to single-family homes. BIG will have a remodeling checklist for multi-family buildings completed next year.

The GreenPoint Rated system allows flexibility in selecting from a broad list of possible green building elements, but requires a minimum number of points in five categories: Community Design, Energy Efficiency, Indoor Air Quality, Water Conservation and Resource Conservation. The energy requirements mandate that a project achieve at least 15% greater energy savings than the minimum level required by the state energy code (Title 24). To qualify as GreenPoint Rated a project must achieve at least 50 points (25 points for the remodeling Elements checklist) out of a potential of over 300 maximum points.

LEED® is administered by the U.S. Green Building Council (USGBC), located in Washington, D.C. LEED® has 5 rating systems for various types of non-residential building

types: New Construction (for new buildings and major renovations), Core and Shell (for spec. buildings with unfinished interiors), Commercial Interiors (for interior improvements), Schools, Healthcare and Retail, and Operations and Maintenance (for fine tuning building systems and maintenance). LEED® has recently completed LEED® for Homes (residential) and a pilot version of LEED® Neighborhood Development (for subdivisions and mixed-use projects).

The LEED® rating systems include items which are “Prerequisites” – mandatory requirements which must be met prior to points being accumulated. For example, for new construction projects must demonstrate a minimum 20% water savings and 10% energy reduction from base codes. There is also a prerequisite for building commissioning, which requires the involvement of a building systems specialist to verify that the energy related systems (lighting, cooling, heating, hot water) are designed, installed and calibrated for maximum efficiency. The many discretionary options which may be included to accumulate necessary points to achieve certification are known as “Credits.” LEED® offers different rating levels based upon the number of points achieved (out of a possible 110 points): Certified [40-49 pts.], Silver [50-59 pts.], Gold [60-79 pts.] and Platinum [80-110].

It is hoped that eventually green building standards will be incorporated into the mandatory state building codes for statewide consistency. A first step in this direction was taken by the California Building Standards Commission in 2008 when they adopted the California Green Building Standards Code for new construction. Most of these are voluntary measures, but there are 7 required items currently and 11 more will be mandated in 2011. These requirements are very much a minimum standard at present, and the adopting legislation gave explicit authority for local governments to adopt more stringent standards.

3 Financial Implications

There have been several studies and much debate about the cost effectiveness of green building techniques. An attached engineering analysis of several LEED® certified buildings found a range of additional cost from 1% to 6% of total project budget, however these initial costs are offset by long term cost savings from lower energy and water use (see Exhibit 3). This range of cost premium is similar to that reported by the construction manager of the San Rafael Corporate Center (new LEED® Gold office buildings) and the County’s Health and Wellness Campus (extensively remodeled LEED® Gold buildings). Incorporation of LEED® provisions increased the cost of the Corporate Center construction by about 1% and by the Wellness Campus by about 6%. It is also instructive to note that the owners of both the Corporate Center and the Northgate Mall have elected to seek LEED® Gold certification even though not required by current City ordinances due to expectations of both lower long term maintenance costs and higher lease rates/more rapid lease-up due to occupant desires for better air quality and comfort and lower utility costs.

A September, 2009 study by the U.C. Energy Institute found that LEED® office buildings command rental rates that average 6% higher and sold for an average of 16% more than standard buildings.

There have been no definitive studies of the added costs of the GreenPoint Rated system or for building renovations under the LEED® system.

4 Existing Green Building Ordinances in Marin

Six jurisdictions in Marin currently have some form of mandatory green building requirements - Marin County, San Rafael, Novato, Mill Valley, Larkspur and Tiburon (see Exhibit 2). All utilize the GreenPoint Rated system for residential and all have mandatory requirements for new construction. Only Novato and the County have requirements for remodels, but utilize the new building rating system which BIG considers an inappropriate application for remodeling. For non-residential buildings, all except Novato use LEED rating systems. Novato has created a rating system based on the California Green Buildings Standards Code. Again, new construction and larger additions are addressed, but only Mill Valley and Novato address tenant improvements.

5 Preparation of a Model Green Building Ordinance for Marin County Jurisdictions

In an attempt to standardize green building regulations among the cities, towns and County of Marin, elected or appointed representatives from each jurisdiction volunteered to serve as a Task Force as part of the Marin Green BERST (Green Building, Energy Retrofit and Solar Transformation) process. A Technical Advisory Committee composed of approximately 50 experts in the fields of construction, architecture, energy consultation, building performance, building inspection, planning, and real estate met 11 times to recommend model regulations to the Task Force. Several presentations were made to city/town councils, and the Task Force endorsed the proposed green building regulations at their meeting of November 19, 2009. The regulations included in the attached ordinance and resolution are consistent with the proposed countywide model green building ordinance.

6 Technical Advisory Committee – Objectives

The Technical Advisory Committee (TAC) identified the following objectives for green building regulations in Marin:

1. Regulations which are consistently implemented across Marin jurisdictions.
2. Regulations which achieve the following, in priority order:
 - a. Energy savings
 - b. Greenhouse gas reductions
 - c. Water conservation
 - d. Practicality of implementation
 - e. Cost effectiveness
 - f. Improved indoor air quality and occupant health
 - g. Resource conservation
 - h. Adaptability for future technology
 - i. Effective marketing
 - j. Environmental protection

7 Technical Advisory Committee – Key Findings and Strategies

Over the course of information sharing and discussions over seven meetings, the following findings and strategies emerged, which influenced the TAC recommendations:

Key Findings

- Most contractors and designers in Marin are already utilizing many green building techniques, either through government requirements or because they save costs and materials. There is great desire among contractors and designers to have a consistent set of standards among jurisdictions to simplify compliance.
- Incorporation of green building components, and involvement of design professionals with expertise in green building, can increase initial construction costs by a few percent, and is most easily absorbed in the cost of larger projects.
- The energy and water savings required by green building rating systems will have long term benefits to property owners, building occupants and the entire community.
- The State of California has mandated that new commercial buildings have zero net energy use by 2020 and residential buildings by 2030. This may result in consideration of standards like Passive House.
- GreenPoint Rated is the most commonly utilized residential green building rating system, and LEED® is most common for non-residential projects.
- Many contractors and designers in Marin indicate that achieving the minimum number of points required in the GreenPoint Rated system (50 points) is not difficult and requires few design modifications.
- There are great benefits to building commissioning, which is required for LEED® certification, since it involves maximizing the efficiency of energy components in a building (lighting, HVAC, hot water), both during design and in actual operation.
- Since Marin communities are largely “built out,” there is relatively little construction of new buildings. Imposing green building requirements to remodeled buildings will have a greater impact in Marin than limiting requirements to new buildings. It is also more challenging to apply green building requirements to remodeling, since there can be such wide variation in the scope and cost of remodeling projects. The GreenPoint Rated system for remodeling requires that a home energy audit be conducted to help focus improvements on the most cost-effective means of energy savings. The cost of a home energy audit is typically \$500 - \$700, but is regarded by construction industry experts as vital information for effective remodeling projects and money very well spent.
- A very high proportion (over 80%) of building permits issued in Marin are for very minor permits, with valuation of less than \$25,000.
- Verification of the inclusion of green building measures is best accomplished through both plan review/field verification/on-site testing by designers or raters who have been trained and certified by the organizations which have developed the rating systems (BIG for GreenPoint Rated or the USGBC for LEED®), and through those organizations formal certification processes. Such certification is also intended to create a branding that will increase property value upon resale or leasing. Certification of homes by BIG costs approximately \$450, and provides the local jurisdiction with a computation of greenhouse gas reduction achieved, which will be helpful in future reporting to state agencies. The USGBC certification process is much more involved, and may add several thousands of dollars in cost to large projects and occurs after occupancy of a project (to complete

building commissioning). The USGBC has recently contracted with another non-profit recently to streamline its certification process.

Strategies

- As the size and cost of building projects increase, greater green building requirements can be accommodated by the larger project budgets and the expertise of design professionals involved. The TAC recommendations propose higher point requirements as project size and valuation increases.
- For smaller, less costly projects, the emphasis is on increasing owner awareness of energy use, using a “whole building” systems approach. The recommendations include either very minimal green building requirements or merely completing the applicable green building checklists (without any point requirements) to educate property owners or lessees on the options and benefits of green building. For residential additions and remodels valued at over \$20,000, it is recommended that property owners be required to have an energy audit performed on the existing building, again to increase energy awareness and to promote the pursuit of greater energy efficiency.
- Since the highest priority objective of the TAC is energy conservation, several of the recommendations propose that projects exceed the minimum requirements of the State Energy Code (Title 24) by prescribed percentages. This approach is also consistent with state objectives to move the construction industry towards zero net energy use in buildings over the next two decades.
- Given the desire of property owners and the City to have vacant commercial buildings reoccupied following the current recessionary period, only voluntary green building measures are recommended for tenant improvements or minor alterations of less than 5,000 square feet or \$500,000 valuation. Relatively minimal requirements are recommended for tenant improvements and minor alterations between 5,000 - 25,000 square feet or less than \$5 million.
- For consistency, GreenPoint Rated and LEED® are the recommended standards, with the ability of applicants to propose other comparable rating systems or techniques, such as Passive House.
- Third-party verification is proposed to significantly reduce implementation responsibilities for local building departments.
- The model ordinance needs to include flexibility for the Chief Building Official to waive requirements which are infeasible (e.g., the requirement to pre-wire homes for photovoltaic systems for lots in deep shade) or to allow applicants to “offset” requirements by funding installations of energy or water conserving features on other properties that achieve comparable savings.
- Given the rapid evolution of green building techniques, research, training and government mandates, it is certain that these regulations will need to be updated frequently, hopefully in a similar comprehensive manner between jurisdictions.

8 Recommendations

A summary of the recommendations of the TAC are attached as Exhibit 1, and explained as follows:

Residential Buildings

New single family and duplex structures would have to be GreenPoint Rated, using the New Home Green Building Guidelines. The number of required points would increase from 75 for a home up to 2,500 square feet, up to 150 points for a new home of 7,000 square feet. In addition, larger homes would have to exceed the requirements of the State Energy Code, Title 24, beyond the 15% increase normally required to be GreenPoint Rated. Homes over 7,000 square feet would have to achieve 200 points, and have zero net energy use. There would be an allowance to “offset” the energy requirements if they cannot be achieved on site, allowing a developer to pay for energy efficiency or renewable energy systems on other properties. In addition, new homes would have to be pre-plumbed and pre-wired to accommodate future installation of photovoltaic panels and solar hot water.

New multi-family projects would also be required to be GreenPoint Rated, using the Multi-family Green Building Guidelines. The minimum points required would increase based on average unit size to encourage smaller, more efficient units, starting at 60 points for units less than 1,000 square feet, up to 75 points for larger units. The same requirements for pre-plumbing and pre-wiring PV and solar hot water would be included, with exceptions for some multi-story units.

Remodeling and additions to residential structures would be treated as follows:

- Building permits for construction of less than \$50,000 in project valuation would be subject to some minor requirements beyond the state building code, based on the type of work. Remodeling which opens walls would be required to insulate exposed hot water pipes, and reroofing projects that remove the roof sheathing would be required to install a radiant barrier (a thin metal material which inhibits heat transfer by radiation). Both upgrades involve minimal additional cost but have significant energy savings benefits.
- For remodeling valued from \$50,000 - \$100,000, applicants would have to submit a completed GreenPoint Rated Existing Homes checklist, but there would be no requirements to include any green features in the project. The purpose of completing the checklist is only to help educate property owners, which may incentivize them to voluntarily modify plans. In addition, the property owner would be required to have a home performance (energy) audit performed (using either the HERSII protocols from the California Energy Commission when these become available for use in 2010 or those from the Building Performance Institute), which will identify areas where the home is not energy efficient. Such an audit can cost between \$500 and \$700, although costs may decrease due to increased volume and green job training efforts to increase the number of auditors. Again, the intent is owner education and to incentivize voluntary energy efficiency upgrades.
- For remodels between \$100,000 - \$300,000, applicants would be required to achieve between 25 and 35 points on the GreenPoint Rated Existing Homes Elements checklist, which was devised for partial remodeling projects. The Existing Homes checklist requires an up-front home performance audit to establish an energy baseline upon which the remodeling must improve building energy performance.

- For remodels over \$300,000, applicants would have to achieve at least 50 points on the GreenPoint Rated Existing Homes Whole House checklist, which is intended for larger remodels, and which may require modifications beyond the area of remodeling, and demonstrate at least a 20% improvement from the home energy audit.
- Remodeling of multi-family projects is not addressed since Build It Green is currently developing a rating system for multi-family renovations.

Verification of compliance with green building requirements may vary by jurisdiction due to staff capabilities (certification of building inspectors as GreenPoint Raters or LEED® Accredited Professionals) or the desire to utilize third-party experts. For new single-family and multi-family dwellings it is recommended that the GreenPoint Rated certification from Build It Green, which costs \$450 for a custom single-family home) be obtained for three reasons:

1. Build It Green provides a quality assurance program for certified projects, whereby a percentage of a raters projects are reevaluated by third party experts,
2. Green building certification will add value in real estate sales, and is being branded by Build It Green through realtor associations,
3. Build It Green provides a calculation of greenhouse gas reductions resulting from the certified project which will assist local agencies in tracking and taking credit for greenhouse gas reductions, and
4. The fees from certification help fund Build It Green's maintenance of rating checklists and extensive training efforts.

Due to the reduced budget for remodeling projects, it is recommended that the requirements for projects between \$50,000-\$100,000 in valuation be verified by agency staff. Larger remodeling projects would be verified in plan check and through field inspection by a GreenPoint Rater, either in-house staff or third party, without the requirement for project certification by Build It Green.

Non-Residential (including Civic) Buildings

New non-residential buildings or additions would use the LEED New Construction or Core & Shell Guidelines, and requirements would vary based on project size:

- Projects between 2,000 and 5,000 square feet would have to submit a completed LEED checklist, but no minimum points would be required. However, applicants would have to meet the 8 LEED Prerequisites (SS-P1 Construction Activity Pollution Prevention, WE-P1 20% Water Use Reduction, EA-P1 Fundamental Commissioning of Building Energy Systems, EA-P2 Minimum Energy Performance, EA-P3 Fundamental Refrigerant Management, MR-P1 Storage and Collection of Recyclables, IAQ-P1 Minimum Indoor Air Quality Performance, and IAQ-P2 Environmental Tobacco Smoke Control).
- Projects between 5,000 and 50,000 square feet would have to achieve a LEED Silver rating. To improve energy efficiency, buildings above 5,000 square feet would have to be 15% below Title 24 requirements.
- Projects over 50,000 square feet would have to achieve a LEED Gold rating.

- As with residential, new non-residential buildings and major remodels would have to be pre-plumbed and pre-wired for future PV and solar hot water, with an exception process.

Tenant improvement and minor alteration projects for non-residential buildings are even more difficult to regulate than residential remodeling due to the great variation in the vintage, construction type and condition of existing commercial buildings, the challenge of dealing with incremental improvement of tenant spaces in multi-tenant buildings, and the splitting of utility and capital costs between landlords and tenants. The LEED Commercial Interiors or Operations & Maintenance checklists would be utilized, with the following requirements based on project size:

- For projects less than \$500,000 in valuation, only voluntary compliance with 2 Prerequisites and 1 Credit of the Commercial Interiors checklist would be suggested. For multi-tenant buildings, the Prerequisite and Credit affecting the HVAC system would only be applicable if over half of the building is being modified, since it would not be reasonable for a single tenant improvement to trigger the replacement of the HVAC unit for the entire building.
- For projects between \$500,000 and \$5 million in valuation, compliance with these 2 Prerequisites and 1 Credit of the Commercial Interiors checklist would be required.
- Projects over \$5 million in valuation would be required to be LEED Silver rated.

The building certification process under the LEED[®] rating system by the U.S. Green Building Council has been notoriously slow and costly. For this reason, the USGBC has delegated this function to the Green Building Certification Institute which has regional offices. Due to the increased cost and complexity of LEED[®] certification it is recommended that green building requirements in new non-residential buildings be verified by a LEED[®] Accredited Professional. Since LEED[®] APs are not required to have field inspection experience, it is further recommended that LEED[®] APs verifying compliance with the ordinance requirements also have an additional green building certification which tests for field expertise, such as GreenPoint Rated or the Building Performance Institute.

For large new non-residential buildings (recommended at 50,000+ square feet) it is recommended that full LEED[®] building certification be required.

Exceptions

For both residential and non-residential buildings, the model ordinance would include a hardship or infeasibility exemption, and there would also be an exception for historic structures from green building requirements that would impair the structure's historic integrity. Exceptions are also included for seismic upgrades, installation of renewable energy systems, flood or earthquake repair and required disabled access improvements.

9 Potential for Modifications to Model Ordinance

Given the variation in the types and sizes of construction projects among the 12 jurisdictions in Marin it is unlikely that a model green building ordinance will work for all agencies. Therefore, it is suggested that the following areas are available for individualization by each jurisdiction:

1. The required number of points and project size ranges can be modified,

2. Compliance with the ordinance could be achieved through third-party raters (GreenPoint Raters or LEED[®] APs) or by in-house inspectors with the necessary certifications,
3. Exemptions from the ordinance can be tailored for each jurisdiction (e.g., historic structures, second units, affordable housing developments, seismic or ADA upgrades, floor or earthquake damage, etc.),
4. Possible incentives (e.g., fee reductions, recognition, etc.) are listed for achieving higher ratings, but can be tailored for each jurisdiction, and
5. The process steps can be modified for each agency. Some, for example, may wish to have the green building checklists submitted at the planning application stage rather than waiting for the building permit application.

10 Next Steps

1. An application will be prepared with assistance of an energy consultant to the California Energy Commission which must approve of local regulations which exceed the minimum requirements of Title 24 to assure that they are cost effective. The adopted ordinance would not become effective until such approval by the California Energy Commission is received.
2. An application will be made to the California Building Standards Commission to review the proposed findings of local climatic conditions. The adopted ordinance would not become effective until such approval by the California Building Standards Commission.
3. Presentations will be offered to requesting agencies to explain the model ordinance provisions and rationale.
4. Local agencies will adopt the model ordinance, or a variant of it, if they choose.
5. Building officials will collaborate over implementation of the common green building provisions.

SUMMARY OF CURRENT GREEN BUILDING REQUIREMENTS IN MARIN COUNTY

City	Single-Family Residential					Multi-Family Residential					Non-Residential				
	New	Addns./Remodel	Rating System	Min. Pts.	Verification	New	Addns/Remodel	Rating System	Min. Pts	Verification	New/Addns.	Remodel/TI	Rating System	Min. Rating	Verification
Novato	New dwelling units	Major renovation only*	Green Point Rated	New - 60 pts Remodel - 30 pts	Building plan check & City building inspectors	New dwelling units	Major renovation only*	Green Point Rated	New - 70 pts Remodel - 35 pts	Building plan check & City building inspectors	Yes - no min. project size	Calif. Green Bldg. Stds. Code	New - 35 pts Remodel/TIs - 15 pts	Building plan check & City building inspectors	
Larkspur	New units	Additions over 500 sf if subject to design review	New - GreenPoint Homes or LEED for Homes Additions - GreenPoint Existing Homes	New - 60 pts or LEED - 50 pts Additions - 6 pts.	Building Official or Third party GreenPoint Rater	New units	Additions over 500 sf if subject to design review	New - GreenPoints Multi-Family or LEED for Homes Additions - GreenPoints Multi-Family	New - 50 pts Additions - 3 pts.	Building Official or Third party GreenPoint Rater	Not covered	LEED (New Construction, Core & Shell or Commercial Interiors	New - Certified for new <5000 sf or Silver for new 5000+ sf Additions - 25% of possible pts. for additions 500+ sf Civic - Silver	Building Official 5000+ sf: US Green Building Council certified	
San Rafael	New dwelling units	Not covered	Green Point Rated	New - 60 pts	Third Party Green Point Rater	New dwelling units	Not covered	Green Point Rated	New - 60 pts	Third Party Green Point Rater	Not covered	LEED	5,000-29,999 sf: Certified Silver 30,000+ sf: Silver	5,000-29,999 sf: verified by LEED Accredited Professional 30,000+ sf: US Green Bldg Council certified	
Tiburon	New dwelling units or additions over 500 sf.	Not covered	Green Point Rated	New & Additions 500+ sf & over 50% increase - 60pts Additions 500+ sf & less than 50% increase - 6pts	Third Party Green Point Rater	New dwelling units & additions over 500 sq. ft.	Not covered	Green Point Rated	New & Additions 500+ sf & over 50% increase - 60pts Additions 500+ sf & less than 50% increase - 6pts	Third Party Green Point Rater	Not covered	LEED	3,000-19,999 sf: Silver 20,000+ sf: Gold Civic: Gold	3,000-19,999 sf: verified by LEED Accredited Professional 20,000+ sf: US Green Bldg Council certified	

City	Single-Family Residential						Multi-Family Residential						Non-Residential					
	New	Addns./Re model	Rating System	Min. Pts.	Verification	New	Addns/Remodel	Rating System	Min. Pts	Verification	New/Addns.	Remodel/ TI	Rating System	Min. Rating	Verification			
Mill Valley	New dwelling units and additions	Not covered	Green Point Rated	New - 50 pts. up to 3,500 sf; 60 pts. over 3,500 sf Additions - 50 pts. if over 50% increase in conditioned space Second units - 50 pts. over 500 sf.	Third Party Green Point Rater	New dwelling units and additions	Not covered	Green Point Rated	New - 50pts Additions - 50pts if over 50% increase in conditioned space	Third Party Green Point Rater	Over \$500,000 construction valuation	LEED New Construction	Sliver	Verified by LEED Accredited Professional				
County	All projects > 500 sf	All projects > 500 sf	Green Point Rated	50-150 pts based on size Over 7,000 sf: 200 pts. + carbon neutral	Third Party Green Point Rater	All projects > 500 sf	Not covered (Def. to 2010)	Green Point Rated	Less than 1,000 sf/unit = 60pts >1,000 sf/unit = 75 pts	Third Party Green Point Rater	Not covered (Def. to 2010)	LEED	500-5,000 sf: no min. pts. 5000-20,000 sf: Certified >20,000 sf: Silver C vic - Gold	Verified by LEED Accredited Professional				
Draft Model Ordinance	New dwelling units 500+ sf	\$25,000+ valuation; <500+ sf	Green Point Rated New Home or Existing Home	New: 75-200 pts + 15-30% below T24 based on home size Addns/Re models: Home performance audit + >\$100,000 valuation 25-35 pts Elements checklist >300,000 valuation	Third party or City building dept. Green Point Rater	New dwelling units	Not covered	Green Point Rated Multi-Family	60-75 pts based on average unit size	Third party or City building dept. Green Point Rater	Over \$500,000 construction valuation	LEED New Construction, Core & Shell, Commercial Interiors or Operations & Maintenance	\$500,000-\$5 million valuation: 2 LEED Prerequisites & 1 LEED Credit; \$5+ million valuation: LEED Certified	Third party or City building dept. LEED Accredited Professional with adnl. GPR or BPI certification				

* Novato defines "Major Renovation" as an addition or remodel that increases the square footage of conditioned space by 50% or more, or removes over 50% of interior wall or ceiling coverings.

50 pts + 20% improvement in home performance audit

MARIN COUNTY MODEL GR. | BUILDING ORDINANCE (Draft)

TABLE A: GREEN BUILDING STANDARDS FOR COMPLIANCE FOR RESIDENTIAL CONSTRUCTION AND RENOVATION

Covered Project	Green Building Rating System	Minimum Compliance Threshold	Energy Budget Below CA Title 24 Part 6	Verification
Single-Family or Two-Family Residential: New construction				
500-2,499 sq. ft.	GPR New Home	75 points	15%	Green Point Rated ¹
2,500-3,999 sq. ft.	GPR New Home	100 points	15%	Green Point Rated ¹
4,000-5,499 sq. ft.	GPR New Home	125 points	20%	Green Point Rated ¹
5,500-6,999 sq. ft.	GPR New Home	150 points	30%	Green Point Rated ¹
7,000+ sq. ft.	GPR New Home	200 points	Net zero energy	Green Point Rated ¹
Single-Family or Two-Family Residential: Renovations (including additions to existing buildings)				
Less than \$50,000 valuation	n/a	Insulate exposed hot water pipes; Install radiant barrier when reroofing and removing sheathing		City building inspector
Less than 500 sq. ft. or \$50,000-\$99,999 valuation ³	GPR Existing Home	Checklist submittal and completion of a HERSII or BPI home performance audit		City plan check
500-749 sq. ft. or \$100,000-\$149,999 valuation ³	GPR Existing Home – Elements	25 points		GreenPoint Rater ²
750-999 sq. ft. or \$150,000-\$299,999 valuation ³	GPR Existing Home – Elements	35 points		GreenPoint Rater ²
1,000+ sq. ft. or \$300,000+ valuation ³	GPR Existing Home – Whole House	50 points + 20% improvement in HERSII or BPI home performance audit results or a minimum HERSII score of 100		GreenPoint Rated ²
Multi-Family Residential: New Construction				
Less than 1,000 sq. ft. average unit size	GPR Multi-Family	60 points	15%	GreenPoint Rated ¹
1,000+ sq. ft. average unit size	GPR Multi-Family	75 points	15%	GreenPoint Rated ¹

¹ Project verification by GreenPoint Rater and certification by Build It Green

² Project verification by GreenPoint Rater

³ Project valuation will be the primary determinate in establishing the Minimum Compliance Threshold for the project, with use of project size range when valuation is uncertain or in the opinion of the building official does not accurately reflect the project scope.

MARIN COUNTY MODEL GREEN BUILDING ORDINANCE (Draft)

TABLE B: GREEN BUILDING STANDARDS FOR COMPLIANCE FOR NONRESIDENTIAL CONSTRUCTION AND RENOVATION

Covered Project	Green Building Rating System	Minimum Compliance Threshold	Energy Budget Below CA Title 24 Part 6	Verification
New construction (including additions to existing buildings)				
2,000-4,999 sq. ft.	LEED® New Construction or Core & Shell	Checklist submittal + compliance with Prerequisites		LEED® AP with additional GreenPoint Rater or BPI Certification
5,000-49,999 sq. ft.	LEED® New Construction or Core & Shell	LEED® Silver	15%	LEED® AP with additional GreenPoint Rater or BPI Certification
50,000+ sq. ft.	LEED® New Construction or Core & Shell	LEED® Gold	15%	GBCI Certified
Renovations				
500-4,999 sq. ft. or less than \$500,000 valuation ³	LEED® Commercial Interiors or Operations & Maintenance	Voluntary compliance with the following Prerequisites: WE P1 (Water Efficiency—Baseline Requirements only) ⁴ EA P3 (Fundamental Refrigerant Management) for renovations of ≥50% of the building interior area Voluntary compliance with the following Credits: EA C1.3 (Optimize Energy Performance – HVAC) for renovations of ≥50% of the building interior area		None
5,000-24,999 sq. ft. or \$500,000 - \$5 million valuation ³	LEED® Commercial Interiors or Operations & Maintenance	Same as above, but Required.		City building inspector
25,000+ sq. ft. or greater than \$5 million valuation ³	LEED® Commercial Interiors or Operations & Maintenance	LEED® Silver		LEED® AP with additional GreenPoint Rater or BPI Certification

³ Project valuation will be the primary determinate in establishing the Minimum Compliance Threshold for the project, with use of project size range when valuation is uncertain or in the opinion of the building official does not accurately reflect the project scope.

⁴ Applicable only to fixtures within area of renovation or restrooms associated with area of renovation.

SOLAR ELECTRIC SYSTEMS

A solar photovoltaic (PV) energy system may be used to meet the Energy Budget Below CA Title 24 Part 6 requirements of this resolution which exceed 15%. To qualify for energy credits, the PV energy system must be capable of generating electricity from sunlight, supply the electricity directly to the building, and the system is connected, through a reversible meter, to the utility grid. The installation of any qualifying PV energy system must meet all installation criteria contained in the California Energy Commission's Guidebook "Eligibility Criteria and Conditions for Incentives for Solar Energy Systems." The methodology used to calculate the energy equivalent to the PV credit shall be the CECPV Calculator, using the most recent version, provided by the California Energy Commission.

INCENTIVES [optional]

A City Green Building emblem for construction signage shall be provided for all residential and non-residential projects that obtain a GreenPoint or LEED rating.

The following incentives shall be provided for residential projects that achieve at least 100 GreenPoints or non-residential projects that achieve at least a LEED® Gold rating:

1. Expedited building permit plan check (typically 2-week turnaround)
2. Reimbursement for the cost of the GreenPoint Rater services (residential projects only, up to a maximum of \$1,000)
3. Provision of a bronze plaque for building mounting, identifying the project as a green building

EXCEPTIONS [optional]

The following shall not be included as Covered Projects:

1. Second dwelling units,
2. Buildings which are temporary,
3. Building area which is not or is not intended to be conditioned space, and
4. Any requirement which would impair the historic integrity of any building listed on a local, state or federal register of historic structures.

The following shall not be included in project valuation:

1. Improvements primarily intended for seismic upgrades or required disabled access,
2. Building replacement due to catastrophic loss due to flood or earthquake damage, and
3. Installation of renewable energy systems.

MARIN MODEL GREEN BUILDING ORDINANCE

Chapter (or Section) XXXX - Green Building Regulations

Purpose.

The purpose of this [Chapter/Section] is to enhance the long-term public health and welfare by contributing to the overall reduction of greenhouse gas production and emissions and improving the environmental and economic health of the [City/Town/County] through the efficient design, construction, operation, maintenance and deconstruction of buildings and site development by incorporating green building practices and materials. The green building provisions referenced in this [Chapter/Section] are designed to achieve the following objectives:

- a. Increase energy efficiency in buildings;
- b. Encourage water and resource conservation;
- c. Reduce waste generated by construction projects;
- d. Reduce long-term building operating and maintenance costs; and
- e. Improve indoor air quality and occupant health; and
- f. Contribute to meeting the state and local commitments to reduce greenhouse gas production and emissions.

Applicability.

The provisions of this [Chapter/Section] shall apply to all construction or development projects defined below as a "Covered Project."

Definitions.

For the purposes of interpreting this [Chapter/Section] and the associated Standards for Compliance, the following terms are defined as follows. When the definitions below differ from those contained elsewhere in this Title, the provisions of this [Chapter/Section] shall apply.

- a. "Addition" means the addition of building square footage to an existing structure.
- b. "BIG" means Build It Green, a non-profit organization which established and maintains the Green Point Rated system for evaluating and certifying residential green buildings and green building professionals.
- c. "BPI" means the Building Performance Institute, a non-profit organization which provides training and certification of green building professionals.
- d. "Building envelope" means the ensemble of exterior and demising partitions of a building and roof structure that enclose conditioned space.
- e. "Compliance threshold" means the minimum number of points or rating level required to be achieved by a particular Covered Project as set forth by the Standards for Compliance outlined in Section XXXX.
- f. "Conditioned space" means any area within a building or structure that is heated or cooled by any equipment.

- g. "Covered project" means a development project for which one or more building permits are required for new construction as set forth by the Standards for Compliance outlined in Section XXXX.
- h. "GBCI" means the Green Building Certification Institute, a non-profit organization which certifies green buildings and green building professionals under the LEED[®] rating system.
- i. "Green building" means a comprehensive process of design and construction that employs techniques to increase the efficiency of resource use, including energy, water and building materials, while minimizing adverse impacts on human health and the natural environment.
- j. "Green building checklist" means a checklist or rating sheet used for calculating a green building rating.
- k. "Green building rating system" means a standardized rating system providing specific criteria to determine the level of compliance of building projects as set forth by the Standards for Compliance outlined in Section XXXX.
- l. "GreenPoint Rated" means a residential building certified as complying with the green building rating systems developed by the Build It Green organization.
- m. "GreenPoint Rater" means an individual certified by Build It Green as capable of evaluating and rating residential construction projects for compliance with the GreenPoint Rated green building rating systems.
- n. "HERS" means the Home Energy Rating System adopted by the California Energy Commission.
- o. "LEED[®]" means the "Leadership in Energy and Environmental Design" green building rating system developed by the U.S. Green Building Council.
- p. "LEED[®] AP" means an individual who has been certified a LEED[®] Accredited Professional by the U.S. Green Building Council or the Green Building Certification Institute as capable of evaluating and rating construction projects for compliance with the LEED[®] green building rating systems.
- q. "Net Zero Energy" means a building that has a net annual Time Dependent Valued (TDV) Energy Consumption, as defined by Title 24 of the California Code of Regulations, of zero, accounting for both energy consumption and the use of on-site renewable energy production.
- r. "New construction" means the construction of a new or replacement residential dwelling unit or a new or expanded non-residential building.
- s. "Qualified green building professional" means an individual who has been trained and certified as a LEED[®] AP, GreenPoint Rater or has similar qualifications and certifications if acceptable to the [Chief Building Official].
- t. "Renovation" means any remodeling, modification or tenant improvement to an existing building that includes replacement or alteration of at least two of the following: heating/ventilating/air conditioning system, building envelope, hot water system or lighting system, but excluding improvements and project

valuation related to seismic or disabled access, building replacement due to catastrophic loss due to flood or earthquake damage or installation of renewable energy systems. Renovation shall include any addition of conditioned space to an existing dwelling unit.

- u. "USGBC" means the U.S. Green Building Council, a non-profit organization which established and maintains the LEED[®] rating systems for evaluating and certifying residential green buildings and green building professionals.

Standards for Compliance.

The [City Council/Town Council/Board of Supervisors] shall adopt a resolution defining which projects shall be deemed to be "Covered Projects" within the meaning of this [Chapter/Section], and establishing "Compliance Thresholds" applicable to Covered Projects.

- a. All Covered Projects shall comply with the Standards for Compliance which shall include, but not be limited to, the following:
 - 1. The types and sizes of projects subject to regulation (Covered Projects);
 - 2. The green building rating system(s) applicable to various types of Covered Projects;
 - 3. Minimum compliance thresholds for various types of Covered Projects; and
 - 4. The methods for verification of compliance with these regulations.
- b. Cumulative new construction or renovations over any one-year period shall be considered as a single Covered Project, and subject to the highest compliance threshold based on the cumulative project size or valuation.
- c. The [Chief Building Official] shall determine the appropriate project valuation based on the cost of similar improvements, and may request substantiating documentation from the applicant. Where Compliance Thresholds contain project size ranges expressed as both building square footage and project valuation, the intent is to base project requirements upon the project valuation range. However the [Chief Building Official] shall have the authority to determine whether the building square footage or valuation range most accurately reflects the scope of the proposed project for purposes of determining the required minimum Compliance Threshold.
- d. The [Chief Building Official] may determine that an alternative green building rating system may be used to determine project compliance, where it can be demonstrated that the alternative rating system is as stringent as or greater in terms of reduced energy and resource use and improved interior air quality than that normally required by the Standards for Compliance.
- e. Mixed use (residential and non-residential) projects must comply either with the applicable Covered Project requirements for the respective residential and non-residential portions of the project, or may propose to utilize a mixed use rating system, subject to approval by the [Chief Building Official].
- f. The cost of reviewing any proposals requesting the use alternate green building rating systems or requests for exemptions including, but not limited to, the cost of the

[city/town/county] of hiring a consultant to review the proposal, shall be borne by the applicant.

- g. All buildings submitted for permit must meet all applicable requirements of the 2008 Building Energy Efficiency Standards, Title 24, Part 6, or subsequently adopted state energy standards.

Incentives for Compliance.

In addition to the required standards for compliance, the [City/Town Council – Board of Supervisors] may establish by resolution financial or application processing incentives and/or award or recognition programs to encourage higher levels of green building compliance for a project.

Administrative Procedures.

The procedures for compliance with the provisions of this [Chapter/Section] shall include, but not be limited to, the following:

- a. Project design. Applicants for a Covered Project are strongly encouraged to involve a qualified green building professional in the initial design phases of the project in advance of submittal of an application to determine applicable green building compliance thresholds and the most cost effective and appropriate means of achieving compliance.
- b. Planning applications. If a discretionary planning application is required for a Covered Project, applicants should be prepared to identify expected green building measures to be included in the project to achieve the compliance thresholds. Applicants should identify any anticipated difficulties in achieving compliance and any exemptions from the requirements of this [Chapter/Section] that may be requested.
- c. Building plan check review. Upon submittal of an application for a building permit, building plans for any Covered Project shall include a green building program description and completed checklist. The checklist shall be incorporated onto a separate full-sized plan sheet included with the building plans. A qualified green building professional shall provide evidence that the project, as indicated by the project plans and green building program description, will achieve the Standards for Compliance outlined in Section XXXX prior to issuance of a building permit.
- d. Changes during construction. During the construction process, alternate green building measures may be substituted, provided that the qualified green building professional provides documentation of the proposed change and the project's continued ability to achieve the Standards for Compliance, and the applicant receives written approval of the substitution from the [Chief Building Official] prior to incorporation of the substitution in the project.
- e. Final building inspection. Prior to final building inspection and occupancy for any Covered Project, a qualified green building professional shall provide evidence that project construction has achieved the required compliance set forth in the Standards for Compliance outlined in Section XXXX. The [Chief Building

Official] shall review the documentation submitted by the applicant, and determine whether the project has achieved the compliance threshold as set forth in the Standards for Compliance outlined in Section XXXX. Where subsequent certification of the building is required by the Standards for Compliance, the [Chief Building Official] shall also determine whether the applicant has demonstrated that such certification is in process and will be achieved not later than one year after approval of final building inspection. If the [Chief Building Official] determines that the applicant has met these requirements, the final building inspection may proceed.

- f. Post final inspection requirement. Where certification of the building is required by the Standards for Compliance, and such certification is only available subsequent to occupancy of the completed building, the applicant shall provide documentation of such certification within one year of the date of the final building inspection for the project. Failure to provide evidence of this certification within this timeframe, or within an alternate timeframe as determined by the [Chief Building Official], will result in a determination that the Covered Project is not in compliance with the requirements of this [Chapter/Section].
- g. Conflict with other laws. The provisions of this [Chapter/Section] are intended to be in addition to and not in conflict with other laws, regulations and ordinances relating to building construction and site development. If any provision of this [Chapter/Section] conflicts with any duly adopted and valid statutes or regulations of the federal government of the State of California, the federal or state statutes or regulations shall take precedence.

Exemptions.

- a. The provisions of this [Chapter/Section] shall not apply to:
 - 1. Second dwelling units.
 - 2. Buildings which are temporary (such as construction trailers).
 - 3. Building area which is not or is not intended to be conditioned space.
 - 4. Any requirements of this [Chapter/Section] which would impair the historic integrity of any building listed on a local, state or federal register of historic structures, as determined by the [Chief Building Official]. In making such a determination, the [Chief Building Official] may require the submittal of an evaluation by an architectural historian or similar expert.
- b. Hardship or Infeasibility Exemption. If an applicant for a Covered Project believes that circumstances exist that make it a hardship or infeasible to meet the requirements of this [Chapter/Section], the applicant may request an exemption as set forth below. In applying for an exemption, the burden is on the applicant to show hardship or infeasibility.
 - 1. Application. The applicant shall identify in writing the specific requirements of the Standards for Compliance that the project is unable to achieve and the circumstances that make it a hardship or infeasible for the project to comply

with this [Chapter/Section]. Circumstances that constitute hardship or infeasibility shall include, but are not limited to, the following:

- i. There is a conflict between the provisions of the applicable green building rating system and the California Building Standards Code, other State code provisions, other requirements of this Title or conditions imposed on the project through a previously approved planning application;
 - ii. There is a lack of commercially available green building materials and technologies to comply with the green building rating system;
 - iii. That the cost of achieving compliance is disproportionate to the overall cost of the project;
 - iv. That physical conditions of the project site make it impractical to incorporate necessary green building measures or achieve the Standards for Compliance;
 - v. That compliance with certain requirements would impair the historic integrity of buildings listed on a local, state or federal list or register of historic structures;
2. Granting of exemption. If the [Chief Building Official] determines that it is a hardship or infeasible for the applicant to fully meet the requirements of this [Chapter/Section], the [Chief Building Official] shall determine the maximum feasible threshold of compliance reasonably achievable for the project. In making this determination, the [Chief Building Official] shall consider whether alternate, practical means of achieving the objectives of this [Chapter/Section] can be satisfied, such as reducing comparable energy use at an offsite location within the City. If an exemption is granted, the applicant shall be required to comply with this chapter in all other respects and shall be required to achieve the threshold of compliance determined to be achievable by the [Chief Building Official].
 3. Denial of exception. If the [Chief Building Official] determines that it is reasonably possible for the applicant to fully meet the requirements of this [Chapter/Section], the request shall be denied and the applicant shall be notified of the decision in writing. The project and compliance documentation shall be modified to comply with the Standards for Compliance.
 4. Appeal. Any aggrieved applicant or person may appeal the determination of the [Chief Building Official] regarding the granting or denial of an exemption or compliance with any other provision of this [Chapter/Section]. An appeal shall be filed in writing and processed in accordance with the provisions of Section XXXX of this Title.

Photovoltaic pre-wiring requirements.

All residential new construction shall include electrical conduit specifically designed to allow the later installation of a photovoltaic (PV) system which utilizes solar energy as a means to provide electricity. Construction specifications to accomplish this requirement shall be adopted by the [Chief Building Official].

No building permit shall be issued unless the requirements of this section are incorporated into the approved building plans. The provisions of this section can be modified or waived when it can be satisfactorily demonstrated to the [Chief Building Official] that the requirements are impractical due to shading, building orientation, construction constraints or configuration of the parcel.

Solar water heater pre-plumbing requirements.

All residential new construction shall include plumbing specifically designed to allow the later installation of a system which utilizes solar energy as a means of heating domestic potable water. Construction specifications to accomplish this requirement shall be adopted by the [Chief Building Official]. No building permit shall be issued unless the requirements of this section are incorporated into the approved building plans. The provisions of this section can be modified or waived when it can be satisfactorily demonstrated to the [Chief Building Official] that the requirements are impractical due to shading, building orientation, construction constraints or configuration of the parcel.

