



# BETTER BUILDINGS

PRACTICES IN THE CNMI

ADDRESSING COASTAL HAZARDS  
THROUGH RESPONSIBLE  
DEVELOPMENT AND RESILIENCY



DIVISION OF COASTAL RESOURCE MANAGEMENT  
BUREAU OF ENVIRONMENTAL & COASTAL QUALITY  
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# GLOSSARY AND KEY TERMS

<b>APC</b>	<b>Area of Particular Concern</b>
<b>BMP</b>	<b>Best Management Practice</b>
<b>BECQ</b>	<b>Bureau of Environmental and Coastal Quality</b>
<b>CZMA</b>	<b>Coastal Zone Management Act</b>
<b>CNMI</b>	<b>Commonwealth of the Northern Mariana Islands</b>
<b>CUC</b>	<b>Commonwealth Utilities Corporation</b>
<b>DCRM</b>	<b>Division of Coastal Resources Management</b>
<b>DEQ</b>	<b>Division of Environmental Quality</b>
<b>DFW</b>	<b>Division of Fish and Wildlife</b>
<b>DOE</b>	<b>Department of Energy</b>
<b>EPA</b>	<b>Environmental Protection Agency</b>
<b>FEMA</b>	<b>Federal Emergency Management Agency</b>
<b>FIRMs</b>	<b>Flood Insurance Rate Maps</b>
<b>HPO</b>	<b>Historic Preservation Office</b>
<b>IBC</b>	<b>International Building Code</b>
<b>ICC</b>	<b>International Code Council</b>
<b>LEED</b>	<b>Leadership in Energy and Environmental Design</b>
<b>MINA</b>	<b>Mariana Islands Nature Alliance</b>
<b>LID</b>	<b>Low Impact Development</b>
<b>SLR</b>	<b>Sea Level Rise</b>
<b>USGBC</b>	<b>US Green Building Council</b>
<b>WEEC</b>	<b>Wastewater, Earthmoving, Erosion Control</b>

# Executive Summary

## Why is it important to consider “better buildings” into planning and design?

- Development pressures in the CNMI are on the rise due to increasing coastal hazards attributed to a changing climate. The Bureau of Environmental and Coastal Quality (BECQ)-Division of Coastal Resources Management (DCRM) identified the need to incorporate low-impact development in order to address coastal hazards by utilizing components of climate resilience and stormwater management.
- Stakeholders prioritized the need to adapt to the potential impacts of a changing climate and expressed challenges such as, incorporating sea level rise scenarios into planning, ensuring that building designs account for increased storm intensity, the need for a multi-faceted approach to address stormwater management and sea level rise, and the need for a sustainable means to produce energy.

## How can a developer incorporate “better buildings” concepts?

- The document seeks to provide guidance for developers and promote increased use of better building practices to increase climate resilience. Developers are encouraged to incorporate best management practices (BMPs) throughout the whole lifespan of a project.
- These BMPs are categorized based on their applications with stormwater management, energy efficiency and climate adaptation. The implementation of stormwater management through BMPs are critical to addressing the footprint of development, since land converted into impervious surfaces can be time consuming and costly to reconvert. BMPs are often cheaper to implement than dealing with damages from flooding during the rainy season or storm events, and some of them such as Low Impact Development (LID) can cut costs on materials and increase aesthetic value through cleanliness and appearance.

## What are the best management practices (BMPs) of “better buildings”?

- Reducing nonrenewable energy sources, such as fossil fuels will lower greenhouse gases released into our atmosphere that cause climate change.
- Applying energy conservation BMPs into design, planning, and construction will mitigate climate change effects and can be economically beneficial to reduce project costs.
- Lastly, development can adapt to these coastal hazards by integrating climate resilient BMPs in the siting phase. BMPs can play a vital role in reducing the overall impact through using quality building materials, avoiding flood-prone areas, repurposing existing buildings, and utilizing BMPs from all categories.

## How can DCRM provide assistance?

- Development projects may be eligible for permit fee reductions if a number of BMPs are implemented throughout the project’s lifespan. Discounts may be applied for projects meeting development standards based on evaluation by DCRM, as outlined in § 15-10-205 (h)(5)(i)(A) and (B).
- Discounts must be requested in writing at least 30 days prior to submitting a Major Siting Application, and applicants should begin this discussion with the Director and Permitting Section in advance to coordinate for any required documentation. This may include design plans, Leadership in Energy and Environmental Design (LEED) rated certification, solid waste plans, and such. The Director shall respond to the request within 30 days of receipt. If there is no response, then the request shall be considered a denial.
- Violations of major siting permit conditions, including lack of maintaining development standards, may result in forfeiture of the discount with any outstanding balance to be determined upon Notice of Violation.

## 为什么考虑“更好的建筑”在规划和设计中很重要？

由于气候变化导致沿海危害的增加，CNMI 的发展压力正在上升。环境和海岸质量局

（BECQ）沿海资源管理局（DCRM）指出，需要纳入低影响开发，以便利用气候恢复力和雨水管理的组成部分来应对沿海灾害

·利益攸关方还优先考虑适应气候变化的潜在影响的必要性，并表达了各种挑战，例如，将海平面上升情况纳入规划，确保建筑设计包括风暴强度增加的因素，需要采取多方面的方法去应对雨水管理和海平面上升，以及需要可持续的能源生产方式。

## 如何能让一个开发者融入“更好的建筑”概念？

此文件旨在为开发商提供指导，并促进更好地使用建筑实践，以提高气候复原力。我们将鼓励开发人员在项目的整个使用期限内纳入最佳管理实践。

这些最好的管理实践根据其雨水管理、能源效率和气候适应方面的应用进行分类。通过最佳管理实践实施雨水管理对于解决开发足迹至关重要，因为将土地转化为不透水表面可能会变得耗时且成本高昂。和处理雨季或风暴事件期间可能发生的洪水造成的损害相比，最佳管理实践的实施成本通常更低，其中一些如低影响开发可以通过清洁和外观来降低材料成本，同时保持审美价值。

## 什么是更好建筑的最佳管理方法 (BMPs) ?

减少不可再生能源，如石油将会减少排放到空气中的温室气体，从而导致气候变化。

将节能最佳管理实践应用于设计，规划和施工可以减少气候变化的影响，在经济上也会降低项目成本。

最后，发展可以适应这些沿海灾害，将气候适应性最佳管理实施纳入项目的选址阶段，通过使用优质建筑材料，避免洪水易发地段，重新调整现在建筑用途以及利用所有类别的最佳管理实践，在减少总体影响方面发挥至关重要的作用。

## 沿海资源管理局将如何提供帮助？

如果在整个项目使用期间实施了若干最佳管理实践，开发项目将根据沿海资源管理局的评估而可能有资格获得许可证费用的免减。如《北马里亚纳群岛行政法》、《沿海管理规则和条例》第 15-10-205 ( h ) ( 5 ) ( i ) ( A ) 和 ( B ) 所述，适用于符合开发标准的项目。

折扣要求必须在至少30天内以书面形式提交主要选址申请，申请人应提前与主任和许可单位开始讨论，以协调任何所需的文件。这可能包括工程师计划，能源和环境设计领导评级认证，固体废物计划等。懂事应该在收到请求后30天内回复该请求，如果无任何响应将被视为拒绝。

违反主要选址许可证条件包括缺乏维护开发标准，可能导致于丧失折扣，并且任何未付余额可根据违规通知决定。



## 계획과 설계에서 "더 나은 건물" 을 고려하는 것이 중요한 이유는 무엇입니까?

기후 변화로 인한 해안 위험의 증가로 CNMI 개발의 절실함은 높아지고 있습니다. 환경 및 연안자원관리국(BECQ)-해안자원관리과(DCRM)는 기후 복원력과 폭우 관리의 구성요소를 활용하여 해안 위험에 대처하기 위해 저영향개발을 통합할 필요성을 확인했습니다. 이해 관계자들은 또한 기후 변화의 잠재적 영향에 대한 적응의 필요성을 우선시하고, 계획 수립에 해수면 상승과 같은 시나리오를 포함시켜 건물 설계가 폭풍의 강도 증가를 보장하고, 빗물 관리와 해수면 상승을 해결하기 위한 다면적인 접근법의 필요성, 그리고 에너지를 생산하기 위해 지속 가능한 수단의 필요성에 대하여 과제를 표명했습니다.

## 개발자는 어떻게 "더 나은 건물" 개념을 도입할 수 있습니까?

이 문서는 개발자들에게 지침을 제공하고 기후 복원력을 높이기 위해 더 나은 건축 관행의 사용을 늘리는 것을 목표로 하고 있습니다. 개발자는 프로젝트의 수명 전체에 걸쳐 베스트 매니지먼트 프랙티스(BMP)를 도입할 것을 권장합니다.

이러한 베스트 매니지먼트 프랙티스(BMP)는 빗물 관리, 에너지 효율 및 기후 적응과 관련된 용도에 따라 분류됩니다. BMP를 통한 빗물 관리의 구현이 차지하는 부분은 개발의 문제를 해결하는데 매우 중요합니다. 왜냐하면 불투수면으로 토지를 변환하는데 시간이 오래 걸리고 재 변환하는데 비용이 많이 들기 때문입니다. BMP는 장마철이나 폭풍우 때 발생할 수 있는 홍수 피해로부터 대처하는 것보다 구현 비용이 저렴한 경우가 많으며, LID(Low Impact Development)와 같은 일부 제품은 청결과 외관을 통해 심미적 가치를 유지하면서 재료 비용을 절감할 수 있습니다.

## “더 나은 건물”의 베스트 매니지먼트 프랙티스(BMP)는 무엇입니까?

석유와 같은 비재생 에너지를 줄이는 것은 기후 변화를 일으키는 대기로 방출되는 온실가스를 낮출 것입니다. 에너지 절약 BMP를 설계, 계획 및 건설에 적용하는 것은 기후변화 영향이 완화되고 프로젝트 비용 절감에 경제적으로 도움이 됩니다.

마지막으로, 개발은 이러한 해안 위험에 적응하고 부지 선정 단계에서 기후 회복력이 있는 BMP를 통합할 수 있습니다. BMP는 고품질 건축 자재를 사용하고, 홍수가 발생하기 쉬운 지역을 피하고, 기존 건물의 용도를 변경하고 모든 범주의 BMP를 활용하여 전반적인 영향을 줄이는데 중요한 역할을 할 수 있습니다.

## DCRM은 어떻게 지원을 제공합니까?

개발 프로젝트는 프로젝트 수명 전체에 걸쳐 다수의 BMP가 구현될 경우 허가 비용을 절감할 수 있습니다. § 15-10-205 (h) (5) (i) (A) 및 (B)에 기술된 바와 같이 DCRM에 의한 평가에 따라 개발기준에 부합하는 프로젝트에 대해서는 할인을 적용할 수 있습니다.

주요 부지 허가 신청서를 제출하기 최소 30일 전에서면으로 할인을 요청해야 하며, 신청자는 사전에 디렉터 및 허가 부서와 논의를 시작하여 필요한 서류를 준비해야 합니다. 여기에는 엔지니어 계획, 에너지 및 환경 설계 리더십 (LEED) 관련 인증, 고체 폐기물 계획 등이 포함됩니다. 책임자는 수령 후 30일 이내에 요청에 응답해야 합니다. 응답이 없을 경우 요청은 거부로 간주합니다.

개발 기준의 유지를 포함한 주요 부지 허가 조건을 위반할 경우 할인 받은 금액이 상실될 수 있으며 위반 통지에 따라 미지급 잔액이 결정됩니다.

## 何故 土地開発企画と設計に「より良い建物」の配慮が重要となるのか？

- ・ 気候の変化に起因する沿岸災害の増加と共に、北マリアナ諸島における土地開発への重圧も 増大しています。環境庁（Bureau of Environmental and Coastal Quality；以下、BECQ）
- ・ 沿岸資源管理局（Division of Coastal Resources Management；以下、DCRM）は、気象への耐久性と降雨管理（ストームウォーター・マネージメント）を利用した沿岸災害対策として、低影響開発（Low Impact Development；以下、LID）の必要性を 認識しています。
- ・ 土地開発関係者の皆様におかれましては、気象変動による様々な影響にも順応していく必要があると考えており、海水準変動を想定した企画、台風など嵐の勢力強化を想定した設計、降雨管理と海水準変動を配慮した多角的アプローチ、更には安定した電力供給の必要性を念頭に 置く事を推奨しています。

## 土地開発者はどのように「より良い建物」のコンセプトを導入すべきか？

- ・ 本文書は、気象変動への対応性強化を目的に、同コンセプトの推奨、そして土地開発者の皆様へのガイダンスとなっています。
- 土地開発関係者の皆様におかれましては、皆様の企画に国際的に推奨されているベストマネージメントプラクティス（以下、BMP）を導入される事を奨励します。
- ・ 上記BMPは、推奨される降雨管理、電力効率、そして気象への対応性において、実際の導入・適用の度合いにより幾つかのカテゴリーに分けられています。特にBMPに基づく降雨管理の 導入は、一度不浸透性化した土地を元に戻すのは時間的にも金銭的にも容易に出来る事では 無い為、開発される土地の占有面積を左右する重要な判断要素にもなってきます。BMPの導入は、実際に雨期や嵐による洪水被害の修復を行うよりもコストがかからず、例えばLIDなどは清潔で美しい外見を損なわずに建築材料のコストダウンが可能です。

## 「より良い建物」の**BMP**とは？

- ・石油などの枯渇性資源を減少させて、気象変動の原因となる温室効果ガスの大気中への流出を軽減します。
- ・ **BMP**推奨の省エネ規定を設計、企画、建築に導入する事により気象変動の原因因子が軽減され、経済的にも企画コストを抑えられます。
- ・ 土地開発者は、土地の選定期の段階から、これら沿岸災害と気象変動への対応性を高める **BMP**の導入が可能です。高品質な建築材を用い、洪水となり易い土地を避け、既存の建物の流用、そして全ての**カテゴリー**に**BMP**の規定を利用する事により、**BMP**は最終的な開発・運営コストの軽減に重要な役割を果たします。

## **DCRM**からは、どの様な支援を受けられるのか？

- ・ 建設から寿命となるまで永続的に**BMP**を導入・適用した土地開発プロジェクトに対する許可料の軽減。尚、同割引は、**DCRM**規定§ 15-10-205 (h)(5) (i)(A) 及び(B)に基づき**DCRM**が開発基準を満たすものと判断した開発プロジェクトが対象となります。
- ・ 上記割引は書面にて要請されるものとし、同要請書は「主要立地申請書 (Major Siting Application)」提出日の遅くとも**30**日前に提出されるものとします。又、それに先立ち、本要請を行う意思の通知や要請に必要な書類についての確認を**DCRM**ディレクターや許可証課 (Permitting Section) と行って下さい。要請に必要となり得る書類の一例としては、土木建築計画書、Leadership in Energy and Environmental Design (LEED) 査定の承認証、固形廃棄物計画書などです。要請書への回答は、要請書受領日より**30**日以内に**DCRM**ディレクターから届きます。期限内に回答が無い場合は、要請が却下されたものと見なします。
- ・ 開発基準維持の不履行を含め、主要立地許可条件の違反は、違反通知における判断により、割引を受ける権利の没収にもなりかねませんので充分ご注意下さい。

# Introduction

**BY: PACIFIC DAILY NEWS  
NOVEMBER 2, 2018**



**(Typhoon Yutu 2018)**



**By: Clynt Ridgell September  
3, 2015**



**(Typhoon Soudelor 2015)**



In the past decade, the Commonwealth of the Northern Mariana Islands (CNMI) has experienced a surge of commercial development. Existing development practices place further strain on the island's natural resources, encroaching on critical areas such as native limestone forests and wetlands. Impacts from Typhoon Soudelor in 2015 and Super Typhoon Yutu in 2018 further signified the need to improve infrastructure resiliency in anticipation of recurring intense typhoons.

As development pressure in the CNMI persists along with the increase in coastal hazards resulting from climate change, the Bureau of Environmental and Coastal Quality (BECQ)-Division of Coastal Resources Management (DCRM) identified the need to move towards low-impact development utilizing components of climate resilience and stormwater management.

DCRM reached out to stakeholders in January 2021 to obtain feedback on challenges and opportunities to improve the management of coastal hazards; and they prioritized the need to adapt to the potential impacts of a changing climate. They expressed challenges such as incorporating sea level rise (SLR) scenarios into planning, ensuring that building designs account for increased storm intensity, the need to develop a multi-faceted approach to address the concerns with stormwater management and SLR, and the need to identify a sustainable solution to produce energy in the CNMI.

# Purpose

This document seeks to provide guidance for developers and promote increased use of better building practices in development projects to increase resilience to projected coastal hazards, as well as to provide an overview of some of the benefits that make the practices worthwhile.

It was developed to further support DCRM's incentives program by allowing investors, commercial development firms, and any other interested parties to benefit from permit incentives offered by the agency. This strategy incorporates key elements of both coastal hazard preparedness and cumulative and secondary impact strategies into a single approach, through planning and siting of new projects.

Integrating better building practices or best management practices (BMPs) found in this guidance will minimize the environmental footprint from infrastructure and bolster resilience to coastal hazard impacts, such as strong typhoon winds and flooding.

In addition, investing in BMPs produce long-term saving costs which are economically beneficial for developers. These BMPs are categorized based on their applications to stormwater management, energy efficiency, and climate adaptation and are described in further detail in each respective section along with implementation strategies. This also greatly supports CNMI's *Smart, Safe Growth* initiative.



**Energy Efficiency**



**Stormwater management**



**Climate adaptation**

# Stormwater Management



**Standing water is an eyesore and nuisance common during wet season.** *Photo Credit: DCRM Planning*



**This basin collects runoff between Middle Road and the Federal Court House.** *Photo Credit: Ross Arriola*

During the wet season of July through December, the Mariana Islands receive 70% of their annual rainfall. Storm events allow for downpours exceeding 15 cm in an hour and can generate flooding and ponding in impervious areas such as parking lots and roads. Rainfall in the CNMI infiltrates into pervious surfaces, or is captured in wetlands where it eventually permeates into groundwater to recharge aquifers. Since the CNMI relies on these aquifers for water supply, recharge is critical especially during periods of drought.

Stormwater accumulates from rain at impervious surfaces, such as artificial structures from development. Stormwater runoff that is conveyed through stream beds and other waterways into the ocean threatens marine resources, coral reef health, and water quality since it captures and discharges sediments and pollutants into the ocean. Excess stormwater from heavy rain creates problems such as flooding and associated infrastructure damage, especially in areas with high development in a floodplain, such as Garapan village.



**The NMI Museum rain garden adds beauty to the roadside and property while collecting and reducing runoff.** *Photo Credit: Ross Arriola*





## Solution: Renewable energy and energy saving BMPs

**Problem:**  
Heavy reliance on nonrenewable sources, such as petroleum



Residential additional cost: \$0.20/kwh



Increase carbon dioxide emissions



**The 360 Building makes excellent use of space to harness solar energy for reducing their buildings' reliance on fossil fuels. Photo Credit: Marianas Business Journal**

The Mariana Islands rely on imported petroleum to generate the islands' electricity. The commercial and small industrial sector account for more than half of the CNMI's total energy consumption, while the residential sector uses three-tenths, and the government and utility sector use the remainder. Because of the cost of importing fuel to the CNMI, residential customers pay an additional fuel charge of almost 20 cents per kilowatt-hour (EIA, 2019). This charge continues to increase with rising costs of global petroleum, and Commonwealth Utilities Corporation (CUC) is focusing on projects to improve nonrenewable energy, such as solar. Reducing nonrenewable energy sources such as oil, will reduce greenhouse gases released into our atmosphere that caused climate change. Applying energy conservation BMPs into design, planning, and construction will mitigate climate change effects and can be economically beneficial to reduce project costs.

# Climate Change Adaptation



Climate change caused from the emission of greenhouse gases will shift long-term global weather patterns and locally affect the CNMI through intense storms, SLR, intense flooding events in the wet season, and intense drought events in the dry season. Super Typhoon Soudelor and Yutu emphasized the importance of factoring climate resiliency into development. Development can adapt to these coastal hazards and integrating climate resilient BMPs in the siting phase of projects can play a vital role in reducing the overall impact through using quality building materials, avoiding flood-prone areas, repurposing existing buildings, and

utilizing BMPs from all categories.



**The Sereniti Hotel has a beautiful green roof that keeps the building cool and provides a space for visitors to enjoy.**

*Photo Credit: Ross Arriola*





There are various regulatory clearances and permits from government agencies that must be completed before developers can proceed with their projects. DCRM's Major Siting Guidance Manual provides an extensive overview of the permitting processes and overlap with federal and CNMI agencies required for approval before project activities can be initiated. Access the digital copy here: ([https://dcrm.gov.mp/wp-content/uploads/crm/Final-Guide\\_finalv2.pdf](https://dcrm.gov.mp/wp-content/uploads/crm/Final-Guide_finalv2.pdf))



## Steps for Applying for a DCRM Permit Discount

1. Ask DCRM! Call us at 664-8300.
2. Schedule a pre-application meeting with DCRM.
3. Submit the DCRM application.
4. DCRM reviews the One-Start application and determines which permit is required.
5. Apply an incentive (see page 8) into your major siting project and keep necessary documentation.
6. Request for discount in writing at least 30 days before you submit the Major Siting Application. Consult with DCRM Permitting Section and Director in advance for consultation. See incentives at page \_.



**Major Siting**





The required documents are outlined in the **Major Siting Checklist**. See figure below as reference. For hard copy, visit DCRM Permitting Office.

A pre-application meeting or early consultation with BECQ can guide potential developers through acquiring the necessary permits and agency consultations for them to begin their project, as well as options for availing of discounts found in the DCRM Regulations. This section will focus on obtaining discounts for DCRM Major Siting Permit applications through the use of BMPs. See the full checklist for more details. ([https://dcrm.gov.mp/wpcontent/uploads/crm/MajorSitingChecklist\\_v6\\_2018.pdf](https://dcrm.gov.mp/wpcontent/uploads/crm/MajorSitingChecklist_v6_2018.pdf))

Required documents for the Major Siting Application include:

- Applicant's name (legal entity that owns the project)
- Applicant's representative (letter from legal entity)
- Names of person's responsible for developing construction plans with the certification details
- Property identification & ownership (lease/title documents)
- Project name
- Estimated costs for improvements affixed to property
- Application fee payment based on estimated costs
- Copies of CNMI and federal permits/status including:
  - Business license
  - Submerged lands (if applicable)
  - Army Corps (if applicable – in water)
  - USFWS/DFW ESA clearance (if applicable)
- Zoning Permit with attachments
  - Master Plan
  - Floor Plan
  - Approved site coverage plan with density (%): open space etc.
- View corridor plan (if 6 stories or greater, at Director's discretion)
- Project summary, justification, size, and alternatives assessed
- Description of existing environment
- Description of socio-economic characteristics re impacts of project including, income, employment, education,



(continued) infrastructure, and services

- Discussion of alternatives and how preferred alternative was selected
- Description of direct, indirect, and cumulative environmental and socio-economic effects, both positive and negative, which are reasonably foreseeable to result from the project including:
  - Plant/wildlife impacts
  - Traffic impact analysis
  - Solid waste estimates/management plan
  - Traffic analysis if required by DPW (standard for projects proposing fifty (50) or more rooms or twenty-five (25) or more full time staff positions)
- Description of how impacts have been avoided, minimized, or will be mitigated
- Evaluation of alternative management measures to control nonpoint source pollution

Fee Amount	Cost of Project or Permit Amendment
\$200	Less than or equal to \$50,000
\$400	Value between \$50,001 and \$100,000
\$1,000	Value between \$100,001 and \$500,000
\$2,000	Value between \$500,001 and \$1,000,000
\$2,000	For every \$1,000,000 cost increment exceeding \$1,000,000

As outlined in DCRM Regulations § 15-10-205 (h)(5) Major Siting project fees are based upon the appraisal of estimated project costs associated with site preparation, sewage treatment, construction, labor, installation, and other related costs.

## Incentives Information

Discounts may be applied for projects meeting development standards based on evaluation by DCRM, as outlined in § 15-10-205 (h)(5) (i)(A) and (B).

**Discounts must be requested in writing at least 30 days prior to submitting a Major Siting Application,** and applicants should begin this discussion with the Director and Permitting Section in advance to coordinate for any required documentation.

The Director shall respond to the request within 30 days of receipt, and no response will be considered a denial. Violations of major siting permit conditions, including lack of maintaining development standards, may result in forfeiture of the discount with any outstanding balance to be determined upon Notice of Violation.

# Incentive: Leadership in Energy and Environmental Design (LEED)



LEED is the most widely used international building rating system developed by the US Green Building Council (USGBC) to accredit construction of resource-efficient and green buildings. It is available for mostly all building types for new constructions and major renovations; and also has several specialty options including core and shell development, data centers, healthcare, hospitality, retail, schools, and warehouses and distribution centers. Project proposals that meet or exceeds current standards for LEED criteria and Guiding Principles as assessed by application of the LEED v4 Building Design and Construction Checklist are considered LEED certifiable. There are minimum requirements depending on the project.

All LEED projects must:

- Be constructed and operated on a permanent location on existing land
- Must use reasonable LEED boundaries Comply with project size requirements
- Be certified by a LEED accredited individual

Some of the benefits of LEED certification include reduced energy and water usage, more durable buildings, less waste output from construction, lower operating costs, and an overall better long-term investment for quality buildings. In order for a project to meet these criteria it must be certified by a LEED accredited individual.

USGBC is in the process of transitioning from Version 4 to Version 4.1, so future DCRM regulation changes will reflect this to honor all accredited versions.

LEED Fee Reduction Incentives Table

Tier 1 Reduction	Building design and construction are "LEED Certifiable," scoring between 40-49 points on the LEED v4 or subsequent Building and Design Construction Checklist	10% fee reduction
Tier 2 Reduction	Building design and construction are "LEED Silver Certifiable," scoring between 50-59 points on the LEED v4 or subsequent Building Design and Construction Checklist	15% fee reduction
Tier 3 Reduction	Building design and construction are "LEED Gold Certifiable," scoring between 60-79 points on the LEED v4 or subsequent Building Design and Construction Checklist	20% fee reduction
Tier 4 Reduction	Building design and construction are "LEED Platinum Certifiable," scoring between 80-110 points on the LEED v4 or subsequent Building Design and Construction	25% fee reduction

# Incentive: Leadership in Energy and Environmental Design (LEED)



## LEED v4 Building Design and Construction Checklist

Y	?	N			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Integrative Process	1
<b>0 0 0 Location and Transportation 16</b>					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	LEED for Neighborhood Development Location	16
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Sensitive Land Protection	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	High Priority Site	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Surrounding Density and Diverse Uses	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Access to Quality Transit	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Bicycle Facilities	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Reduced Parking Footprint	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Green Vehicles	1
<b>0 0 0 Sustainable Sites 10</b>					
<input type="checkbox"/>			Prereq	Construction Activity Pollution Prevention	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Site Assessment	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Site Development - Protect or Restore Habitat	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Open Space	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Rainwater Management	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Heat Island Reduction	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Light Pollution Reduction	1
<b>0 0 0 Water Efficiency 11</b>					
<input type="checkbox"/>			Prereq	Outdoor Water Use Reduction	Required
<input type="checkbox"/>			Prereq	Indoor Water Use Reduction	Required
<input type="checkbox"/>			Prereq	Building-Level Water Metering	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Outdoor Water Use Reduction	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Indoor Water Use Reduction	6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Cooling Tower Water Use	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Water Metering	1
<b>0 0 0 Energy and Atmosphere 33</b>					
<input type="checkbox"/>			Prereq	Fundamental Commissioning and Verification	Required
<input type="checkbox"/>			Prereq	Minimum Energy Performance	Required
<input type="checkbox"/>			Prereq	Building-Level Energy Metering	Required
<input type="checkbox"/>			Prereq	Fundamental Refrigerant Management	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Enhanced Commissioning	6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Optimize Energy Performance	18
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Advanced Energy Metering	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Demand Response	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Renewable Energy Production	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Enhanced Refrigerant Management	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit	Green Power and Carbon Offsets	2

# Incentive: Leadership in Energy and Environmental Design (LEED)



## LEED v4 Building Design and Construction Checklist

0	0	0	<b>Materials and Resources</b>		<b>13</b>
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
			Credit	Building Life-Cycle Impact Reduction	5
			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
			Credit	Construction and Demolition Waste Management	2

0	0	0	<b>Indoor Environmental Quality</b>		<b>16</b>
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
			Credit	Enhanced Indoor Air Quality Strategies	2
			Credit	Low-Emitting Materials	3
			Credit	Construction Indoor Air Quality Management Plan	1
			Credit	Indoor Air Quality Assessment	2
			Credit	Thermal Comfort	1
			Credit	Interior Lighting	2
			Credit	Daylight	3
			Credit	Quality Views	1
			Credit	Acoustic Performance	1

0	0	0	<b>Innovation</b>		<b>6</b>
			Credit	Innovation	5
			Credit	LEED Accredited Professional	1

0	0	0	<b>Regional Priority</b>		<b>4</b>
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1

0	0	0	<b>TOTALS</b>		Possible Points: <b>110</b>
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

# Incentive: Recycling and Composting Programs



As listed in §15-10-206(e)(9)(v), major siting applications must include the estimated solid waste production during construction and solid waste management plan.

Solid waste plans and other related documents, or necessary inspections, would be examples of the basis from which DCRM determines if discounts are available as well as if the projects are implemented and maintained.



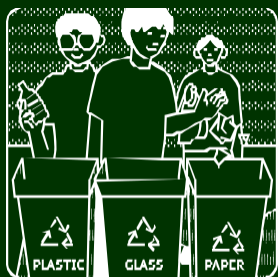
**MINA's Adopt-a-Bin Program is a model example of a recycling program that could be used within any building.** *Photo Credit: MINA*



How much estimated waste does your building construction and operations produce?



How much waste will be recycled and composted instead of dumped into the landfill?



Please dispose of your trash properly.

How do you plan to make proper collection happen?



How do you plan to maintain the recycling and composting programs?

## Fee Reduction Incentive:

Permittee or its operators implements and maintains on site recycling and composting programs to reduce 50% or more of the waste stream - 5% fee reduction

# Incentive: Redeveloping or Rehabilitating Existing Buildings

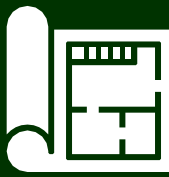


Redevelopment or Rehabilitation of Existing Buildings offers the highest fee reduction in the permitting incentive system, and is based on the percentage of the existing building. Some of the criteria that DCRM will use to make a determination are required in the application package and outlined in §15-10-206 Permit Application Contents. These include copies of final master site plan and construction plan certified by a CNMI licensed architect and engineer, relevant maps and documents, and building inspections.



**The Marianas Lighthouse is a historical building that has been artfully renovated to attract visitors.**

*Photo Credit: Ross Arriola*

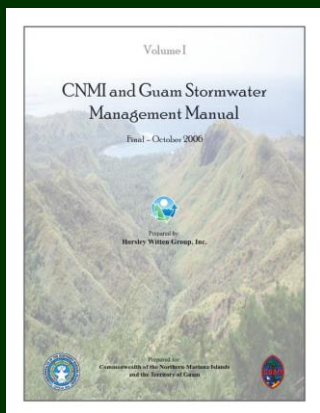


## Fee Reduction Incentives Table

Tier 2 Reduction	Applicant redevelops or rehabilitates 15-25% of the existing building	10% fee reduction
Tier 3 Reduction	Applicant redevelops or rehabilitates 26% - 50% of the existing building	20% fee reduction
Tier 4 Reduction	Applicant redevelops or rehabilitates 51% - 74% of the existing building	30% fee reduction
Tier 5 Reduction	Applicant redevelops or rehabilitates over 75% of the existing building	50% fee reduction



# Incentive: Stormwater Management



CNMI Earthmoving and Erosion Control regulations § 65-30 contain policies for stormwater management to acquire a permit. These include stormwater control plans for projects, and long-term stormwater maintenance plan. DEQ's Wastewater, Earthmoving, Erosion Control (WEEC) branch regulates stormwater management and ensures that development follows these standards to reduce or alleviate stormwater discharge and properly manage all of the stormwater on development sites, based on the 25 year 24 hour storm event. Stormwater standards § 65-30-301(b) cite Erosion and Sediment Control Standards 1-11 and Post Construction Standards 1-13 of The CNMI and Guam Stormwater Management Manual Vol I and Vol II ((2006). It provides guidance on how to properly implement stormwater management and BMPs to protect surface and groundwater quality, prevent erosion and sedimentation, and minimize flooding.

Implementation of stormwater management through BMPs are critical to addressing the footprint of development, since land converted into impervious surfaces, can become time consuming and costly to revert. BMPs are often cheaper to implement than dealing with damages from flooding which can occur during the rainy season or storm events, and some of them such as Low Impact Development (LID) can cut costs on materials while maintaining aesthetic value through cleanliness and appearance.

BMPs that minimize stormwater impacts by filtering pollutants maintain a clean environment that appeals to tourism. Other BMPs recharge the aquifer, or allow water reuse through collection and harvesting, ensuring a steady supply for an operation and reducing pressure from municipal water supply and energy costs.

## BENEFITS OF STORMWATER BMPs



**Lower costs**



**Aesthetic**



**Clean water**



**Aquifer recharge**



## Fee Reduction Incentives Table

Tier 1 Reduction	Project implements and maintains on-site stormwater management practices that collect from an off-site source and treat or contain an additional 10%-24% of the project's total stormwater runoff volume, based on the 25 year 24 hour duration storm event; AND/OR Project implements and maintains 30%-49% of pervious surface area or green infrastructure elements	5% fee reduction
Tier 2 Reduction	Project implements and maintains on-site stormwater management practices that collect from an off-site source and treat or contain an additional 25%-49% of the project's total stormwater runoff volume, based on the 25 year 24 hour duration storm event; AND/OR Project implements and maintains 50% or more of pervious surface area or green infrastructure elements	10% fee reduction
Tier 3 Reduction	Project implements and maintains on-site stormwater management practices that collect from an off-site source and treat or contain an additional 50%-74% of the project's total stormwater runoff volume, based on the 25 year 24 hour duration storm event	20% fee reduction
Tier 4 Reduction	Project implements and maintains on-site stormwater management practices that collect from an off-site source and treat or contain an additional 74% of the project's total stormwater runoff volume, based on the 25 year 24 hour duration storm event	30% fee reduction

## IMPORTANT

**All permit fee reduction requests for stormwater management practices must meet the standards set forth in 2.1 and 2.2 of the 2006 CNMI and Guam Stormwater Management Manual, specifically E&SC Standards 1-11 and Postconstruction Standards 1-13, DEQ stormwater management standards require the on-site detention of 100% of stormwater runoff volume, based on the 25-year 24-hour duration storm event; therefore, applicants requesting a fee reduction for stormwater management must account for the additional percentage by collecting additional stormwater from off-site, and treating or containing it.**

# Incentive: Stormwater Management Best Management Practices



Species landscaping



Permeable parking lot



Constructed wetlands



Bioretention areas and basins



Wet swale



Rain water catchment



Bioswale



Open channels



Infiltration basins



Percolation/Infiltration trenches



Check dam



Filter Strips and Buffers

Others include: Gravitational Separation Systems (such as Vortech technology acquired by the Imperial Pacific for the storm drainage)

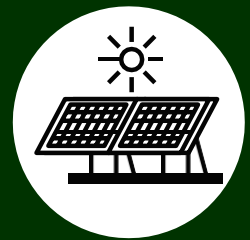
# Incentive: Energy Efficiency



As global non-renewable fuel sources are depleted and greenhouse gas concentrations increase in the atmosphere, the cost of fuel will continue to increase and affect the CNMI's dependency on imported energy. In order to become less reliant on fossil fuels, it is essential to find ways to reduce load and find alternative solutions.



Utilizing BMPs such as efficient building design, renovating older buildings, green infrastructure, and renewable energy resources provide long-term savings. These savings can be seen in material and labor costs, and lower energy use through more efficient technology or naturally cooling the area with green infrastructure. In addition to lower energy costs, LEED certified buildings will have a higher property value, and DCRM encourages this certification through permit fee reductions. Solar energy is currently small scale and supplemental, but is a viable alternative that provides long term savings. Even small practices like unplugging devices or using energy strips to easily switch off devices can save on electricity charges.



Permit discounts for qualifying "Energy Star" rated projects are available. Energy Star is a program of the US Environmental Protection Agency (EPA) and Department of Energy (DOE) that provides information on energy efficient products and practices for consumers and businesses to make well-informed decisions. These products include appliances, building products, commercial food service equipment, data center equipment, electronics, heating and cooling, lighting, office equipment, heaters, and other equipment.

## Fee Reduction Incentives Table

Tier 1 Reduction	Project installs, utilizes, and maintains "Energy Star" related high efficiency/LEED lighting and appliances or a renewable energy source supplying 20% or more of a project's electricity	5% fee reduction
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# Incentive: Energy Efficiency Best Management Practices



Green roofs



Solar power and other renewables



Energy Star qualified appliances



Renovated Buildings



LEED rated "green" buildings



Solar water heaters/air conditioners

# Incentive: Climate Change Adaptation



Due to its geographical location, the CNMI experiences typhoons, flooding, and other hazards, and is in a high wind region. The CNMI government has been actively working on adapting to climate change, and in December 2019, adopted the 2018 International Building Code (IBC) through Public Law 21-14. The IBC was developed by the International Code Council (ICC) and “provides minimum requirements to safeguard the public health, safety and general welfare of the occupants of new and existing buildings and structures” and “addresses structural strength, means of egress, sanitation, adequate lighting and ventilation, accessibility, energy conservation, and life safety in regard to new and existing buildings, facilities, and systems.” (Section 101, Introduction, ICC)

Specific criteria outlined in DCRM regulations §15-10-311 and §15-10-505 require mitigation for projects that may have negative impacts to coastal resources. The adopted guidance for this Mitigation Hierarchy follows a step-wise approach through Avoidance, Minimization, Restoration, Offset, and Compensatory Mitigation.

## MITIGATION HIERARCHY:

Avoidance

Minimization

Restoration

Offset

Compensatory Mitigation



Major Siting Projects must also meet the Department of Public Works (DPW) flood hazard reduction standards in the CNMI Flood Damage Prevention Regulations (NMIAC, title 155, chapter 10.2, Part 200)



Avoiding areas with a high risk to coastal hazards, such as those prone to coastal flooding or sea level rise (SLR) is the first and easiest step.



DCRM regulations require development to use best available science (such as DCRM-adopted coastal flood scenarios) when available for evaluating current and future risks and impacts.

# Climate Change Adaptation: Best Management Practices



Stormwater Management and Energy Efficiency BMPs and Incentives also fall under Climate Change Adaptation. But climate change adaptation is highlighted because a changing climate increases the severity of coastal hazards.



Gray water recycling and  
Water monitoring equipment



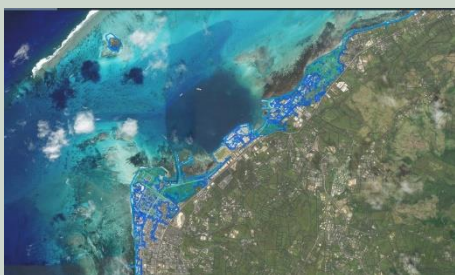
Typhoon resistant equipment



Building cooling equipment



Elevated structures



Avoiding areas vulnerable to sea  
level rise  
and coastal flooding

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Energy Star Overview

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EPA. (2012). Choose ENERGY STAR Certified Appliances [Brochure].

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LEED v4 Building Design and Construction Checklist from the US Green Building Council (USGBC) is available in different languages on the organization's website: <https://www.usgbc.org/resources/leed-v4-building-design-and-construction-checklist>.

Mitigation Hierarchy follows a step-wise approach through Avoidance, Minimization, Restoration, Offset, and Compensatory Mitigation: <https://cnmilaw.org/pdf/cnmiregister/OtherAgency/041425.pdf>

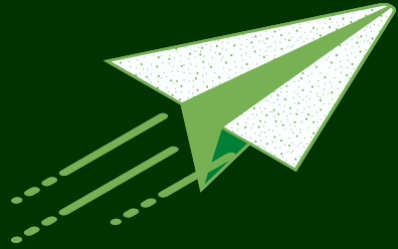
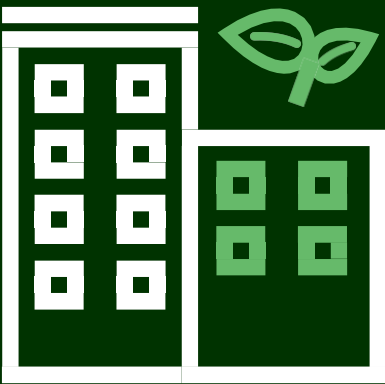
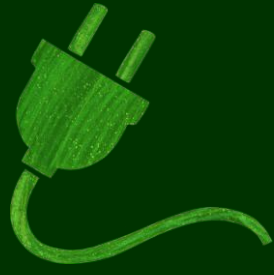
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Check out the electronic  
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## Contact Us for Assistance

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