
NZB.RGChan.

1.0 Prolegomenon

Executive Summary

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ABOUT THE SERIES

This pdf file-binding is part of the
 NZB.RGChan.Series on foundational researches undertaken by
 R.G.CHAN & Associates for in-house office use, towards
 systematic steps for Net Zero Building Design of projects.

Beginnings

In Wikipedia (the Internet Encyclopedia), the word Prolegomenon is given as a synonym for an Introduction or Executive Summary. Prolegomenon is thus selected in the context of all that follow, with this binding considered as the front matter for all of the succeeding segments or bindings. All of which will be centered towards the development of steps and strategies towards the assembly of an anthology of materials towards the creation of systematic approaches towards Net Zero Building (NZB) Design for projects in the Philippines.

Environmental Science, Sustainable Development, Tropical Design, Green Building, LEED (in the US context), BERDE (in the the Philippine context) are among the topics which come to mind. All of which can be considered as related or sub-topics whenever Net Zero Building Design is discussed. As such, it will be readily appreciated just how wide an understanding needs to be reconciled with whenever an attempt is made to create a building design that can adequately respond to the challenge of being an NZB design.

Variants on the NZB abbreviation abound. This includes: Zero-Energy building (ZE), Zero Net Energy (ZNE), Net-Zero Energy Building (NZEB), Net Zero Carbon and others. All of which actually refer to exactly the same meaning or import. Our choice for this series is Net Zero Building (NZB), sans the hyphen, and is geared towards simplicity and ease of use. This also correctly dovetails with the Advancing Net Zero (ANZ) agenda of the World Green Building Council (WGBC) which targets the year 2030, as culmination year. The Philippines is listed as an ANZ participant under the banner of the Philippine Green Building Council (PhilGBC). In our country, the green building agenda has been established under the Building for Ecologically Responsive Design Excellence (BERDE). It is appropriate to add context by mentioning that the term *berde*, is the actually the local Tagalog (and Spanish) equivalent when referring to the green color.

With its Principal Architect duly registered as a Certified BERDE Professional (CBP) since 2013, and our firm RGChan & Associates (RGC&A) specialising in Green Building Design, we reconcile with our participation in the sustainability movement. We have chosen Net Zero Building (NZB) as our core title in undertaking these research studies. Because sustainability will forever be in a state of flux—where new ideas are constantly being put forth, the components of this series must always be considered as work in progress.

We are not aware of any similar studies, such as ours, in the context of the assembly of an anthology specifically targeted towards the creation of Net Zero Building (NZB) design in the Philippine setting. Can we therefore categorize ours as a pioneer study-initiative?

Definitions

The Zero-Energy Building definition in Wikipedia is replete with plenty of sub-topics which should best be taken as resource information. Reconciling with the, direct NZB definition: a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is equal to the amount of renewable energy created on the site.

Of late, Net Zero Building (NZB) has become rather clouded from its (above) original definition where, in the strictest context, a building is either an NZB (at 100% performance) or is not (anything less than 100%). As it turns out, the term has been widened to mean different levels of being Net Zero. In the recent 08 September 2020 Zoom Webinar of the PhilGBC we attended, the ANZ/PH Program Rating has announced that local Net Zero Certification will have five ratings of certification:

1 Star	40% to less than 52 %	Minimum Practice
2 Star	52% to less than 64 %	Good Practice
3 Star	64% to less than 76 %	Ideal Performance
4 Star	76% to less than 88 %	Exemplar Practice
5 Star	88% to 100 %	World Class

Reconciling with the above, a wider spectrum of acceptability (more forgiving!) has become possible. Making it possible to attain NZB Certification without the necessity of requiring a 100% rating.

Our aim in this research series will be towards the maximization of whatever rating we can achieve, through the systems we propose to use.

Answering the Difficult Question

Consequently, the Difficult Question will be: "Who can actually afford to build a local Net Zero Building?" Because of the additional expense required in order to produce on-site energy, NZB projects will always mean additional expense/s. Resulting in a given: Net Zero Buildings will always require a larger capital investment that a non-NZB Project.

Our proposed answer, will have to be: only those who are willing to put in the added expense, because they appreciate the would-be savings that are forthcoming after their period of capital recovery. Plus the added long-term savings-bonuses which will continue thereafter. Add to this, the joy of being a participant in the advocacy towards Sustainable Development and responsive to the agenda of "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

As we gaze unto the future, we look forward to the day, when technology will have better answers in making NZBs cost less, and make NZBs the de facto standards for construction and not the exception.

PARTS OF THE CURRENT ANTHOLOGY

NZB.RGChan.1.0 Prolegomenon

Introduction and Executive Summary, where all portions of the current study are enumerated in turn. Then given a short contextual explanation, towards building an appreciation on how the other segments of the study can be understood as a holistic framework.

NZB.RGChan.2.1 Exploratory Report

In search of software that can be used in the Science of Architectural Design and related topics in the study of the natural elements such as the sun, wind, rain and their relationship towards environmental comfort and how this can be achieved by way of the design for a building. Several candidate software are compared with respect to reports that can be generated and used.

NZB.RGChan.2.2 Ecotect Manual

Having found a software of choice in the Ecotect software, this starter in-house manual has been produced as an introductory guide for use in the training of office personnel. This binding is profusely illustrated towards guidance in doing our office projects.

NZB.RGChan.2.3 Ecotect Course

This is the subsequent in-house guide for use in the training of office personnel. Project-based examples are shown in step-by-step series. Making possible, a better grasp of the systems that have been developed in-house.

NZB.RGChan.3.1 Koppen-Geiger Philippines

Reconciling with the weather information necessary towards the generation of location-specific data, the Koppen-Geiger information for the Philippines is studied in detail. Climate Classifications are enumerated and described. Seventeen Regions are given, with the respective provinces and sites enumerated for the purpose of understanding locational inter-relationships.

NZB.RGChan.3.2 Koppen-Geiger Key Locations

As a subsequent binding which follows the above, this binding proceeds to list our choice of twenty (20) key locations; four (4) for each of the five (5) Koppen-Geiger Climates that we have in the Philippines.

NZB.RGChan.4.0 SWRL Design Strategies

Developed as a parallel strategy to the “Bundle-Up!” Strategy for Net Zero Building Design as described in our key reference-- Sun, Wind & Light (SWL). Our localized version (for use in the Philippine context) is the Sun, Wind, Rain & Light (SWRL) Strategy.

NZB.RGChan.5.1 San Marino_ADP

Our Architectural Design Program (ARP), intended for Residential Design. Developed from the above-mentioned SWRL Strategy, but tailor-fitted to the more intimate level of the design for residences.

NZB.RGChan.5.2 San Marino_MNQ

First generation of design, for a given location in San Marino, Dagupan, Pangasinan of the Philippines. The architectural program requirements are as mandated by the actual owner of the plot upon which the building concept is proposed. This study was prepared to be responsive to the National Building Code of the Philippines. Undertaken by Ms. Moira Angelie N. Quero.

NZB.RGChan.5.3 San Marino_JEA

First generation of design, for a given location in San Marino, Dagupan, Pangasinan of the Philippines. The architectural program requirements are as mandated by the actual owner of the plot upon which the building concept is proposed. This study was prepared to be responsive to the National Building Code of the Philippines. Undertaken by Ms. Joanna Rose E. Arconcil.

NZB.RGChan.5.4 San Marino_JLL

First generation of design, for a given location in San Marino, Dagupan, Pangasinan of the Philippines. The architectural program requirements are as mandated by the actual owner of the plot upon which the building concept is proposed. This study was prepared to be responsive to the National Building Code of the Philippines. Undertaken by Mr. Ian John L. Lolong.

NZB.RGChan.6.1 UC Campo Libertad

Net Zero Building Design Analysis for the proposed University of the Cordilleras multi-storey building, located in Baguio City. Our study indicates that our entry for the Design-Build Competition for the project will yield a design that can adequately qualify as a four-star NZB, with the achievement of a 78% (Exemplar Practice) over-all rating.

MORE TO COME

Our program is to produce further research studies, to supplement the foregoing. With our further research to guide us towards a more systematic approach towards the creation of authoritative Net Zero Building designs in the Philippines.

References (among others)

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