

Biophi+LIVE

Lving with Urban Sustainability & Environmental Consciousness

ASDA22-80014





Design Concept

The concept, **Biophi+Live**, a word play between living with Biophilic and Sustainable design and urban living, was mainly inspired by the growing density in the urban landscape. With the seemingly unending growth of demand for housing and habitation, more often than not, design gets compromised – more specifically with the right for natural light and ventilation stemming from the assumption that such spaces (such as a bathroom) need not be designed with so much attention. And thus Biophi+Live, adapting principles of Biophilic design to bring in nature, closer to one's home. Unifying design aesthetics with eco-friendly and green design solutions with our emerging urban life; putting first those who we are designing for before our design ideals. For above all things, to be humanitarian in design is the noblest of artistic pursuit.

Design: Floor Plan and Elevations

Compact & Space-Saving Design

Aside from incorporating popular and trending design styles, top design consideration and requirements by recent condominium bathroom renovations consist of integrating compact and space saving concepts in the plan and design of bathrooms. As the target client for this project are young couples on a work from home (WFH) setup, efficient layout for similar activities (laundry, ironing, and charging station for devices) was carefully planned. Areas for storage was also considered through multiple cabinetry, niche space and proper allocation for timely hobbies (indoor gardening) and activities (laundry and parent-assisted bathing of children) in the bathroom's design and layout.

Area allocated for condominium bathroom pipe chase. Could alternatively be space for niche or column depending on client requirements and existing condo planning/design



Bathroom Floor Plan
Floor Area = 5.99 sqm (approx 6.0 sqm)



Elevation A



Elevation B



Elevation C



Elevation D

Design Visuals: Full Bathroom

Multifunctional & Biophilic Design


Biophilic design was integrated through colors, finishes, and presence of indoor plants emulating nature's natural colors- thus giving a sense of breath from the density of the urban landscape. Biophilic design was also made present through incorporating natural light and allowing for natural ventilation to be present in the design.

A sense of "Aliwalas"


As with any Filipino design, specifically with interior spaces, is the Filipino affinity for *aliwalas* (the lightness and spaciousness, of spaces). This is achieved through the prominence of light colors (such as white, beige, and light hues of grey and blue) helping both natural and artificial light spread throughout the space and the provision of a large mirror to expand the visual outlook of the bathroom amidst being compact



Full Bathroom views to Shower, toilet, and Lavatory/Sink Area

Promoting to brick back the provision of windows in condominiums and high rise/multi-storey dwellings 



 Lever door knob that can be operated using one's elbow to avoid hand contact and spread of bacteria

The importance of Windows in Bathrooms

Common in most condominium design and planning in the Philippines is neglecting the importance of natural ventilation and sunlight from windows to supposedly save up space for views and optimize the area in maximizing the amount of condo units that can be made. This in fact, is not entirely true due to various case studies of condominiums showing a significant cost in maintenance and health-related issues from solely depending on mechanical ventilation and the accumulation of mildew in bathrooms from lack of natural light. The designer, in this project, aims to highlight the need and benefits of natural light and ventilation in bathrooms as well as to promote integrating windows as a common staple and necessity in designing bathrooms for multi-story dwellings such as a condominiums.

Design Visuals: Shower Area

For this specific project, amidst having ample space for a bathtub, only the shower stall was considered. Showers, as compared to bath tubs, has been proven to save significantly more water. Along with this, the shower model chosen for this project, which is the **EasySET Exposed Shower Auto Temperature Mixer with Integrated Rain shower Kit** has integrated features such as its water saving and air-infused technology, easy clean surface, and thermo-safe, twist-free ergonomic design that coincides with the objectives and concept of the project. Along with this, the shower's easy glide feature and shower holder was also a consideration given that the target client is foreseen to have children.



Design Considerations & Features



Ergonomic & Low Lead

Ergonomic design of low lead smooth handle of shower kit



Design Inclusivity

Incorporating consideration for client's children through utilizing shower head with adjustable height



Water-Saving Feature

Economical feature of air-infused water technology for the shower



Minimized Carbon Footprint

From locally sourced materials such as biowood, internal wall eco bricks, and locally sourced/available tiles

Design Visuals: Toilet Area

With the increased consciousness in hygiene brought about by the pandemic, touchless and sensor driven technologies were chosen for the project. For the toilet area, American Standard's **Flexio One Piece 4.8 Lpf Touchless Toilet** was chosen- a recent product by American Standard that ticks off the main concern and considerations for the project, that is - hygiene from the IMSL checked bacteria inhibiting surface / finish, ergonomic design for comfortable seat and inclusivity for pregnant and disabled (from the toilet seat height considered), and one of its innovative features, its touchless technology that prevents the spread of germs. This specific model was also chosen as an appropriate toilet model (the model's toilet water tank) to incorporate Sloan's AQUUS Grey water saving system. Additionally, a bidet toilet spray, as well as standard tissue paper holder was incorporated as an appropriate consideration for the target client.



Design Considerations & Features



Touchless Sensor Technology
From touchless technology feature of hand sensor from the toilet



Sinuous Curvature
Complementing the design aesthetic of the bathroom through the curvature of the toilet



Minimized Carbon Footprint
From locally sourced materials such as biowood, internal wall eco bricks, and locally sourced/available tiles



Water-Saving Feature
Embedded water saving feature and design of toilet

Design Visuals: Basin Area

Once again, the priority for touchless fixtures/technology has led to the design choice for using a sensor driven faucet by American Standard which is the **Line Sensor (Square) Extended Basin Faucet (DC)** coupled with the **Neo Modern Vessel Wash Basin**. Incorporating a sensor-driven faucet in the design not only improves hygiene and prevents bacterial spread, but also ensures an economical way of saving water according only to one's needs. Along with the faucet and basin is the incorporation of a bathroom stool for children specifically designed according to the bathroom's theme and aesthetic.



Design Considerations & Features



Touchless Sensor Technology
From touchless technology feature of faucet



Design Inclusivity
Incorporating consideration for client's children through design integrated foot stool



Minimized Carbon Footprint
From locally sourced materials such as biowood, internal wall eco bricks, and locally sourced/available tiles



Water-Saving Feature
Economical feature of touchless sensor technology to save and conserve water



Sinuous Curvature
Complementing the design aesthetic of the bathroom through the curvature of the basin

Design Visuals: Optional Images

Sustainable & Green Design Innovations

The current generation's awareness for sustainability and green design has led to an increase in popularity for technology that involves eco-friendly and green solutions. One of which are alternative sources for clean renewable energy. While most solar harvesting technology is mostly applied to buildings with a centralized source, the proposed solar transparent window was designed specifically for a controlled power usage for individual units.

The growing affinity among Filipinos for home gardening as a hobby from the pandemic has been taken as inspiration for pursuing an innovation for rain water collection that is inspired from observing the water build up in most window sills in apartments and condominiums (which mostly do not have window canopies on the exterior facade)



Laundry & Shower Area Isometric Diagram



1 Solar Window: Integrating the ClearVue Panel Technology

Reference: <https://www.clearvuepv.com/>

A recent technology by ClearVue has showcased how glass panels could be designed to harness and redirect/deflect UV (Ultraviolet) and IR (Infrared) and light from the sun towards a window panel's frame where solar cells are embedded (ClearVue,2020). Transparent solar panels/windows have recently been emerging as a green renewable energy source. But this has only been applied to buildings with full glass facades and a centralized energy storage. In this innovation, such technology was adapted to allow collection of controlled supply of energy for each condo unit to charge devices and use small appliances.



2 Rainwater Collecting Window

an original design for this project

Specifically designed for this project is the rainwater collecting feature of the bathroom design's window. In relation to the space allocation for house plants, various studies have shown that rainwater is better for watering and keeping plants healthy rather than tap water which contains treatment chemicals and salts. The process starts from rainwater from the nano-treated (for efficient water droplet flow) window getting redirected towards the sloped window sill catchment area. Water then gets collected and filtered through the geo water filter (with calcium carbonate filter for rain with high acidity) and gets dispensed with the help of the faucet dispenser sensor.



Design Visuals: Optional Images

Greywater Saving Toilet

Tithe AQUUS Greywater system by SLOAN was integrated in the design of the bathroom. Integrating this in the design process not only assures water saving and efficiency, but also prevents eye-sore from only incorporating such technology later on.



3 AQUUS Greywater Recycling System by SLOAN

Reference: <https://inhabitat.com/sloans-innovative-aqus-grey-water-toilet-system-makes-every-drop-count/>
Integrating SLoan's greywater saving solutions where greywater from sinks can be reused and recycled to flush down toilets (Michler, 2011). This was introduced to the project as it can be applied regardless of sink and toilet brand as long as ample storage for filter box and toilet tank is met.

Client Needs

Client consideration and purposeful design was of utmost priority throughout the design process. Recent trends in the affinity for home gardening as a hobby for example has caused a problem lack of space for plants.

As with most condominium layouts/plans, the laundry area is often times neglected in the design process resulting for eye-sore placement of washer/dryers by users in undesignated areas for laundry (ie. balcony or kitchen). And thus, a properly designed space allocated for Laundry and plants

The Laundry Area

Clothes Hanger

Area for sun-drying and naturally disinfecting clothes as a greener alternative for drying clothes.

Voice Activated Smart Bathroom TV

A source of entertainment while multi-tasking and for children while being accompanied by their parents during a shower (for 4-5 year olds)

Indoor Plant Area

The growing popularity of gardening as a recent hobby has sometimes led (especially among Filipinos) to a disorganized and scattered placement of plants all over one's bathroom/dwelling. And thus an intended area for indoor plants were considered as part of the design solution





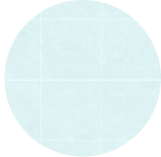


4 Built-in foldable ironing board

A foldable ironing board drawer was integrated to enhance efficiency in working with clothes and make the space more compact and multi-functional.

Specifications: Colors, Materials and Finishes

Consideration for sustainable materials readily available in the local market (Philippines) such as bio wood (a hybrid material between plastic and wood), and concrete. Marble tiles and blue ceramic tiles were also chosen as cost-efficient and readily-available materials as they can easily be found locally.

Wall Finishes

	<p>GRM Biowood Wall Cladding</p> <p>Source: http://www.grmbiowood.com.ph/product-category/facade-and-cladding/</p>
	<p>Atlantis Marble</p>
	<p>Azul Blue Ceramic Wall Tiles</p>
	<p>Concrete Wall Finish</p>
	<p>Self-Cleaning Non-VOC Stucco White Paint Finish</p>

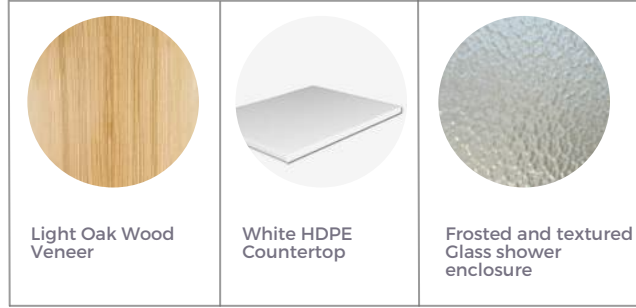


Specifications: Colors, Materials and Finishes

Other materials include HDPE countertops, a sustainable material recycled from plastics, and wood veneer, a recyclable, non-toxic and biodegradable material for cabinetry finishes.

Floor finishes were also chosen to be Zero VOC and hypoallergenic ceramic tiles.

Cabinetry and Enclosure Finish



Floor Finishes










American Standard Products Specified

American Standard has a vast collection of bathroom fixtures, accessories, and technologies. From the growing consciousness and importance people are giving out to hygiene in these recent times, American Standard products that feature touchless technology and antimicrobial features were thus considered. Additionally, with the design approach on aiming to exude the mood and tones of nature, a calming and spa-like atmosphere was also integrated with the biophilic intention for the interior's design. American Standard's product design, specifically with fixtures and accessories that features smooth, undulating, and sinuous curves were made to complement the ambience of care and relaxation. Along with this, such curved fixtures were also chosen as curved surfaces are found to be easier to clean and maintain



American Standard Products

	<p>Toilet Flexio One Piece 4.8 Lpf Touchless Toilet</p> <p>Collection Flexio</p> <p>Product SKU CL25305-6DACTTL</p>		<p>Soap Dish Acacia Evolution Soap Dish</p> <p>Collection Acacia E</p> <p>Product SKU FFAS1382-908500BF0</p>
	<p>Basin Faucet Line Sensor (Square) Extended Basin Faucet (DC)</p> <p>Collection Line</p> <p>Product SKU FFAS8510-D00500BC0</p>		<p>Towel Bar Acacia Evolution Towel Holder</p> <p>Collection Acacia E</p> <p>Product SKU FFAS1393-908500BF0</p>
	<p>Basin Neo Modern Vessel Wash Basin</p> <p>Collection Neo Modern</p> <p>Product SKU CCASF633-0000410F0</p>		<p>Paper Holder Acacia Evolution Tissue Holder</p> <p>Collection Acacia E</p> <p>Product SKU FFAS1387-908500BC0</p>
	<p>Shower Signature Exposed Bath & Shower Mixer With Rainshower Kit</p> <p>Collection Signature</p> <p>Product SKU FFAS1772-701500BC0</p>		