



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

TURN-KEY ENERGY + DEVELOPMENT SOLUTIONS

Energy Planning, Financial Engineering and
Project Implementation

THE APEX MEDICAL UNIVERSITY

CHONGWE, ZAMBIA

FEBRUARY 2017



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

APEX MEDICAL UNIVERSITY

ENERGY CONSERVATION & HOUSING MASTER PLAN

CHONGWE APEX MEDICAL UNIVERSITY

LUSAKA, ZAMBIA

“Creating the future medical care for Zambia and beyond.”

APEX MEDICAL UNIVERSITY DATA SHEET

- STUDENT BODY OF 8,000 IN SIX YEARS, GOAL TOWARD 30,000 STUDENTS
- SERVING MEDICAL TRAINING FOR ZAMBIA AND SURROUNDING COUNTRIES TO INCLUDE NAMIBIA, ZIMBABWE, ANGOLA, BOTSWANA, DRC, TANZANIA, MALAWI, MOZAMBIQUE AND THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY.
- SEVEN MEDICAL UNIVERSITY FACILITIES WITHIN PHASE I
- TWENTY-TWO FACULTY TO GROW TOWARD 3,000
- FUTURE 400 BED HOSPITAL
- COMPLETION OF 7-PHASE CAMPUS MASTER PLAN
- ALL FACILITIES WILL BE ENERGY SUFFICIENT TO ENSURE 24/7 ENERGY AVAILABILITY

ESSENTIAL PHASING TOWARD UNIVERSITY POTENTIAL CAPACITY

- PHASE I APEX MEDICAL UNIVERSITY PRE-MEDICAL COLLEGE FACULTY VILLAGE
- PHASE II APEX MEDICAL UNIVERSITY PRE-MEDICAL COLLEGE FACILITIES
- PHASE III APEX MEDICAL UNIVERSITY CHONGWE MEDICAL CLINIC
- PHASE IV APEX MEDICAL UNIVERSITY STUDENT VILLAGE
- PHASE V CREATION OF MEDICAL PROFESSIONS COLLEGE
- PHASE VI APEX HOSPITAL DEVELOPMENT
- PHASE VII MEDICAL RESEARCH CAMPUS



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

PHASE I ENERGY EFFICIENT HOUSING

APEX MEDICAL UNIVERSITY PRE-MEDICAL COLLEGE FACULTY VILLAGE

100 Unit Housing for Faculty and their families





ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

PHASE I SITE LOCATION IN CHONGWE





ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

PHASE I SITE LOCATION IN CHONGWE



ENERGY AND INFRASTRUCTURE TEAM



ROBERT OAKLEY IS THE FOUNDER AND CEO OF ECM SOLUTIONS GROUP. BOB HAS OVER 25 YEARS OF EXPERIENCE IN THE U.S., CARIBBEAN, AFRICA AND THE MIDDLE EAST IN ENGINEERING, CONSTRUCTION, PROJECT MANAGEMENT AND INVESTIGATIVE FORENSIC PROCEDURES. HE SPECIALIZES IN VALUE ENGINEERING, SECURITY AND RISK ASSESSMENT, AND ENERGY SUSTAINABILITY FACILITY OPTIMIZATION.



EATON IS A POWER MANAGEMENT COMPANY THAT PROVIDES ENERGY-EFFICIENT SOLUTIONS THAT HELPS IT'S CUSTOMERS MANAGE ELECTRICAL, HYDRAULIC AND MECHANICAL POWER MORE EFFICIENTLY, SAFELY AND SUSTAINABLY. EATON'S VISION IS TO IMPROVE THE QUALITY OF LIFE AND THE ENVIRONMENT THROUGH THE USE OF POWER MANAGEMENT TECHNOLOGIES AND SERVICES.



RALPH THARP, AICP HAS OVER 30 YEARS OF MAJOR PROJECT DEVELOPMENT MASTER PLANNING AND CIVIL ENGINEERING EXPERIENCE. HE HAS FACILITATED MAJOR ENERGY, TRANSPORTATION, ARCHITECTURAL AND COMMERCIAL DEVELOPMENT PROJECTS WORLDWIDE. HIS GLOBAL PORT BAGHDAD MASTER PLAN IS A \$100 BILLION USD PROJECT FOR ECONOMIC REVITALIZATION AND ENERGY TECHNOLOGY TRANSFER WITHIN THE COUNTRY OF IRAQ.



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

ENERGY AND INFRASTRUCTURE TEAM

- RALPH THARP — PROJECT MANAGER, MASTER PLANNER, CIVIL ENGINEER
- PATRICE MANUEL - PROJECT MANAGEMENT
- LAURA RODGERS - DEFENSE CONTRACTOR/SECURITY ADVISOR
- **STALWART GLOBAL GREEN**
- **ADD CONSTRUCTION GROUP**
- DALE CARRUTH - MODULE METRIX
- LLOYD NGOSA — MODULE METRIX
- GARY PARKER - MODULE METRIX



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

ENERGY AND INFRASTRUCTURE TEAM

- THIRD PARTY INDEPENDENT EVALUATION FROM INDUSTRY LEADING SUBJECT MATTER EXPERTS
- USE OF PROFESSIONAL TOOLS THAT ACCURATELY MEASURE VULNERABILITIES AND THEIR IMPACT
- PROVIDES FOCUS AND VALIDATION TO FUTURE SECURITY AND PERSONNEL EXPENDITURES
- ADD CREDIBILITY AND VALIDATION FOR INVESTORS AND FUNDING AGENCIES
- DEVELOP RESILIENCE AND SUSTAINABILITY
- MITIGATE RISK
- REDUCE LIABILITY
- INDOCTRINATE PERSONNEL TO SECURITY AWARENESS THROUGH TRAINING
- INCREASE PRODUCTIVITY — EFFICIENCIES FOUND BY WORKING WITH PROCESSES AND PERSONNEL



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

ENERGY AND INFRASTRUCTURE TEAM ZAMBIA AND AFRICA EXPERIENCE

- ADD IN DATA



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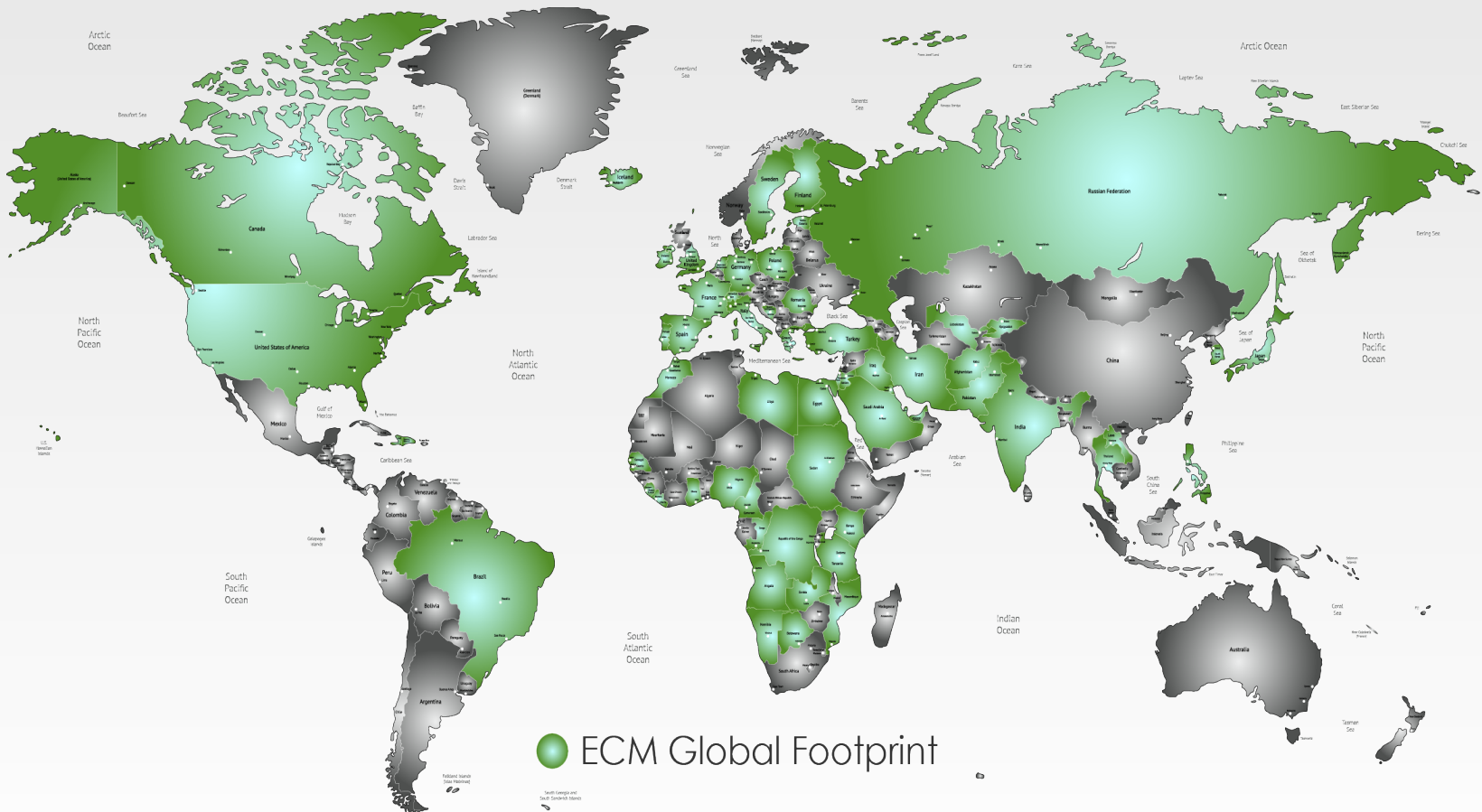
ENERGY AND INFRASTRUCTURE TEAM

6-STEP PATH TO VALUE





ENERGY CONSERVATION MEASURES SOLUTIONS GROUP





ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

PARTNERS WITH STALWART GREEN GLOBAL HOUSING





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TYPICAL LAYOUT PLAN
40 UNITS PER FLOOR
4./ FLOORS

Optional
• Solar power
• Solar HW



Apartments - 18 & 30 Unit Building - 800-1,100 SF
1 Bedroom - 1 Bath & 2 Bedroom - 2 Bath Units

Option two

- Layout of rooms
- Self contained
- Two bedroom
- One bed space
- Gym
- Meeting room
- Common kitchen



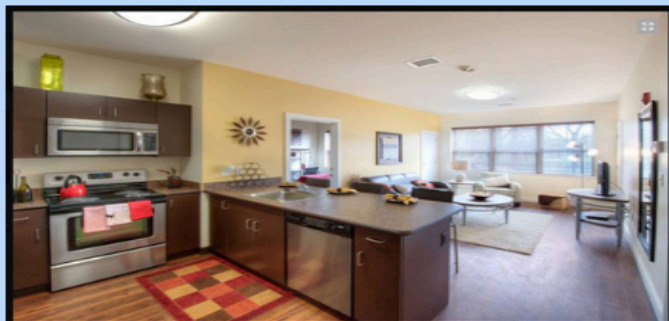
ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

PARTNERS WITH STALWART GREEN GLOBAL HOUSING



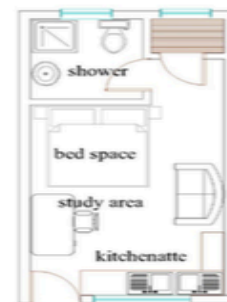
Study and eating space
Option one



Eating and mingling
space



2 bedroom plan



1 bed space plan



Study bench



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

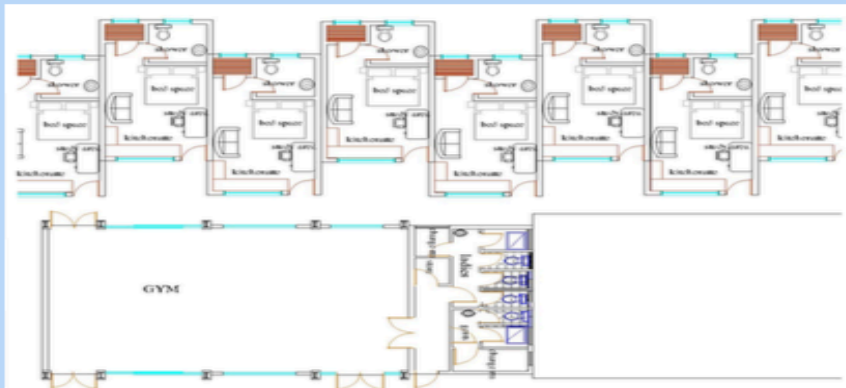
PARTNERS WITH STALWART GREEN GLOBAL HOUSING



Fully flagged gym in house



Lecture rooms





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INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY



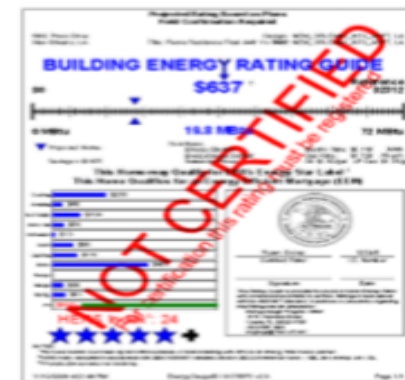
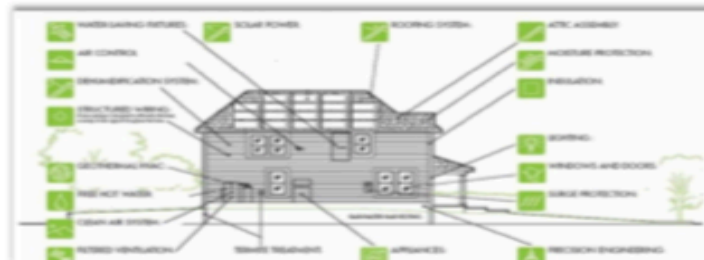
"CREATING A WHOLE NEW INDUSTRY"



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

Energy Efficiency Value Engineer Design & Modeling



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INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

Concrete Board



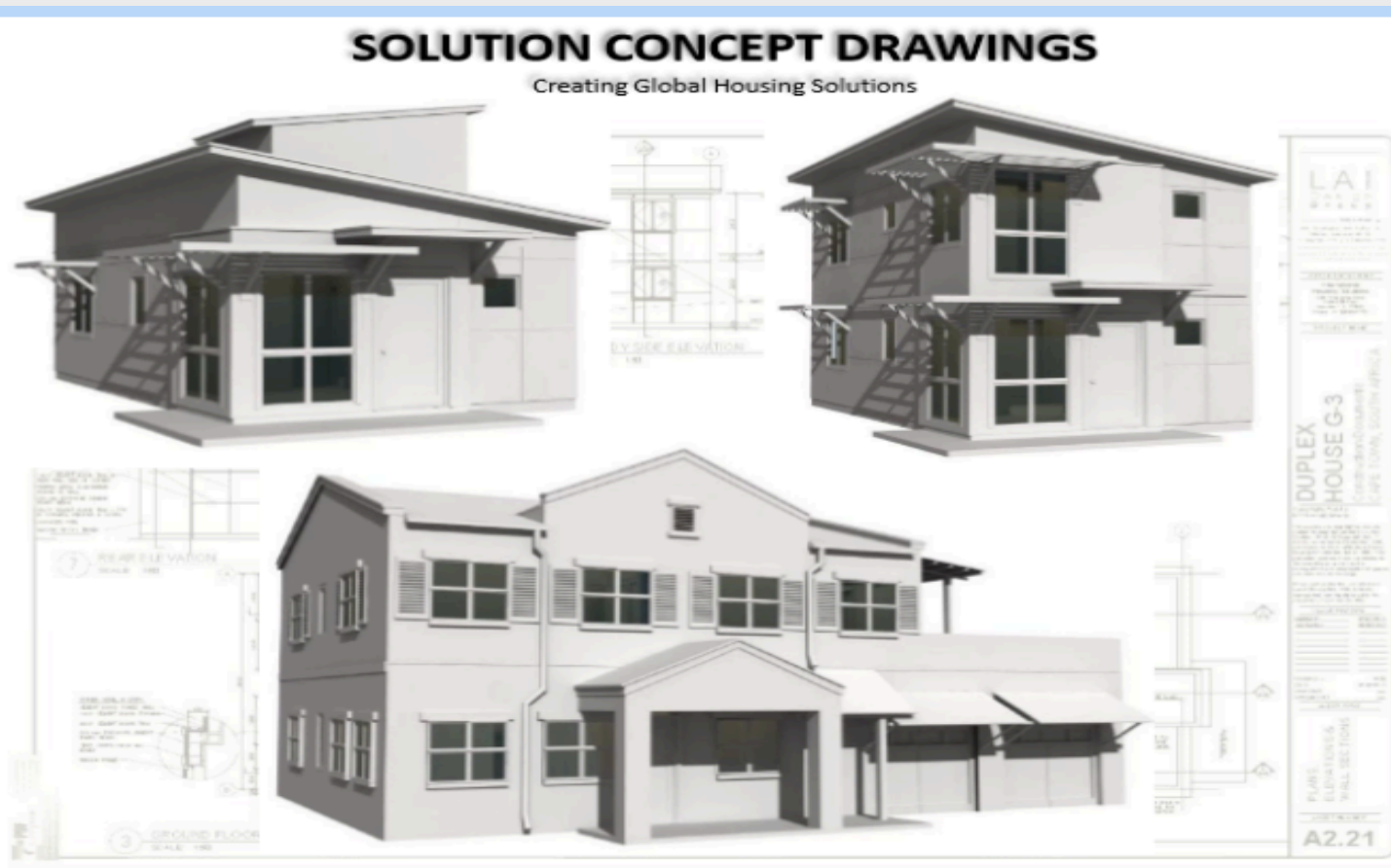
Characteristic

- 1) Environmental friendly material; Non-asbestos and no formaldehyde; No poison gas or radiation producing during using.
- 2) Water and moisture proofing; An ideal material for interior partition wall of kitchen, washing room and so on and for exterior wall.
- 3) Can used as wall or barrier to satisfy the requirement of sound insulation.
- 4) Rapid and easy for construction; No matter as wall board or suspended ceiling, easy to drill, cut and dig. Can do surface treatment and so on.
- 5) Light weight and high strength, easy to transit and construct.
- 6) Fire proofing; No burning and poison gas happened of the board even there is fire; No flame transfer.
- 7) With lower thermal conductivity, had good heat insulation property.
- 8) Good property of anti-aging; Antisepsis and moth proofing.



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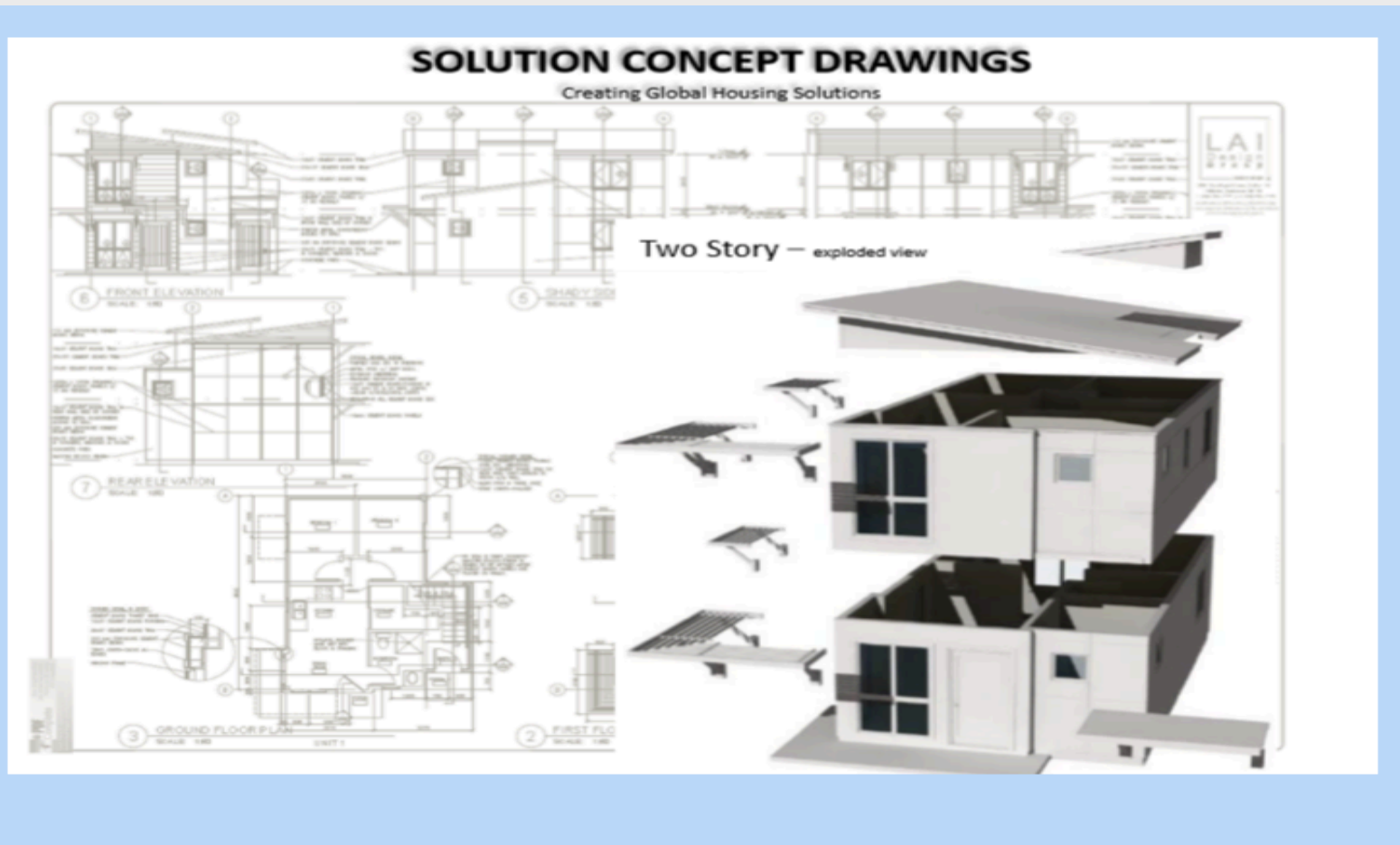
INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY





ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY





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INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

PARTNERS WITH STALWART GREEN GLOBAL HOUSING





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INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

PARTNERS WITH STALWART GREEN GLOBAL HOUSING

- ALTERNATIVE ENERGY SOLUTIONS

OUR STRATEGIC PARTNER RELATIONSHIP WITH GLOBAL MARKETS GIVES OUR TEAM THE ADDED ADVANTAGE OF BEING ABLE TO OFFER WORLD WIDE SOLUTIONS FOR ALTERNATIVE ENERGY WITH THE LATEST CUTTING EDGE TECHNOLOGIES AND PROVEN PERFORMANCE.

- EXPERTISE

ENERGY PLAN CONSULTING,
MICRO-GRID DEVELOPMENT,
ECO & ENERGY DISTRICTS,
SUSTAINABILITY PLANS, ENERGY STANDARDS, DEMAND RESPONSE, VERIFICATION SERVICES, PROJECT FINANCE

SUSTAINABLE MEP DESIGNS, STRATEGIES, ENERGY STUDIES, CENTRAL PLANTS AND INFRA- STRUCTURE
UPGRADES, COMMISSIONING AND TECHNOLOGY



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

- **PROCESS**

- UTILIZE INDUSTRY BEST PRACTICES IN PROVIDING SERVICES
- A COMPREHENSIVE PARTNER: WORK WITH CLIENTS FROM PROJECT DISCOVERY ALL THE WAY THROUGH TO FINANCE AND DEVELOPMENT

- **STRATEGIES**

1. **REDUCE BUILDING ENERGY DEMAND**

*PASSIVE & ACTIVE STRATEGIES LIKE SHADING, INSULATION, EFFICIENT LIGHTING, VARIABLE SPEED DRIVES

2. **DISTRICT-WIDE SYSTEMS TO INCREASE EFFICIENCY**

*WHEN APPROPRIATE USE DISTRICT WIDE SYSTEMS LIKE A CENTRAL UTILITY PLANT OR AUTOMATED WASTE COLLECTION SYSTEM

3. **ON-SITE RENEWABLE ENERGY GENERATION**

*DESIGN, ENGINEER, INSTALL SOLAR, SOLAR THERMAL, WIND AND OTHER RENEWABLE FOR DEPLOYMENT

4. **MEET GRID DEMANDS WITH RENEWABLE ENERGY AND HYDRO-POWER**

*WORK WITH LOCAL UTILITY TO ENSURE ENERGY SUPPLY COMES FROM CLEAN RESOURCES

5. **EMPLOY SMART GRID TECHNOLOGY**

*INTEGRATE INFRASTRUCTURE; AFFECT DEMAND THROUGH PEAK SHAVING AND BUDGET ACCOUNT BILLING



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

INTEGRATED BUILDING SOLUTIONS ALTERNATIVE ENERGY

- UTILITY EXPERTISE

SYSTEM FLEXIBILITY

ONGOING RETURNS

SYSTEM REDUNDANCY

- UTILITY INFRASTRUCTURE MASTER PLANNING

SYSTEM EVALUATIONS

EXAMINE FUTURE DEMANDS

UNDERSTANDING OF CRITICAL REQUIREMENTS



ENERGY CONSERVATION MEASURES SOLUTIONS GROUP

ENERGY AND INFRASTRUCTURE TEAM

THE ECM ENERGY SOLUTIONS GROUP TEAM IS AVAILABLE TO DISCUSS YOUR ENERGY AND INFRASTRUCTURE NEEDS AND PROVIDE A TURN-KEY SOLUTION TAILORED TO YOUR UNIQUE REQUIREMENTS.

CONTACT INFORMATION FOR BOB OAKLEY:

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