

Materiales de Construcción, Energía y Medio Ambiente

Construction Materials, Energy and Environment

Kurt Rhyner P. (Architect, PhD)

Coordinador Grupo Sofonias

- **Every one of our actions creates damage to the environment**
- **Cada una de nuestras actividades causa algún daño al medio ambiente**

Physical damage to nature

Daños físicos a la naturaleza



- **Poisoning nature and ourselves**
- **Envenenando la naturaleza y nosotros**



Consumption of non renewable energy

Consumo de energía no renovable



Damage to human dignity

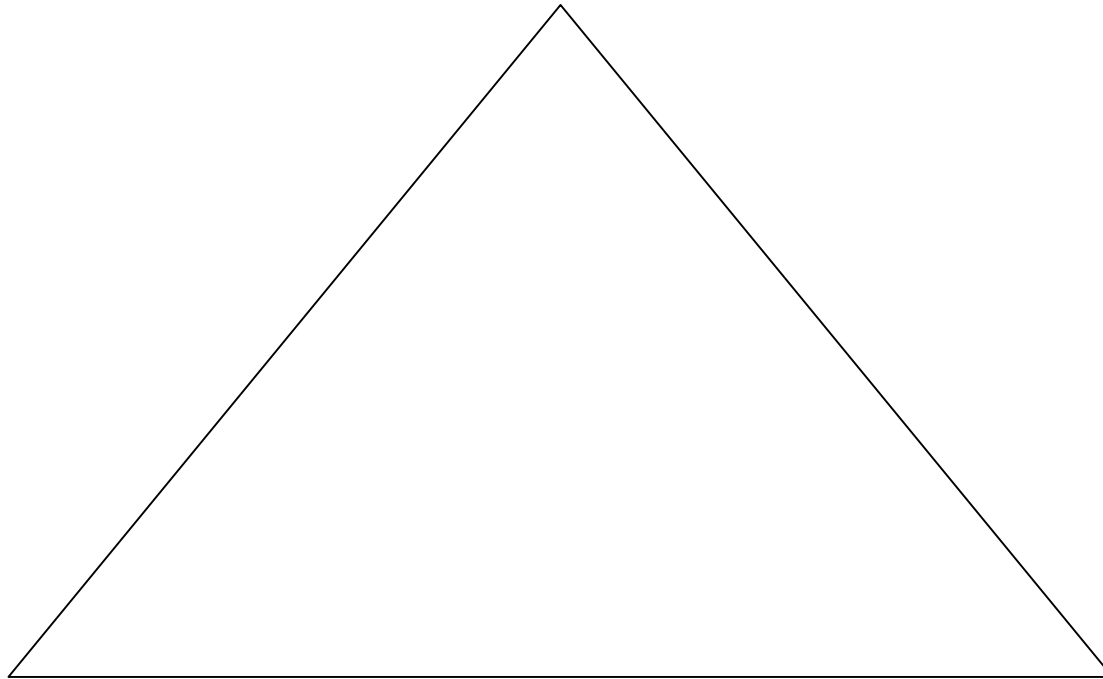
Daños a la dignidad humana



THE MAGIC TRIANGLE OF SUSTAINABILITY

EL TRIANGULO MAGICO DE LA SUSTENTABILIDAD

ECOLOGY / ECOLOGIA



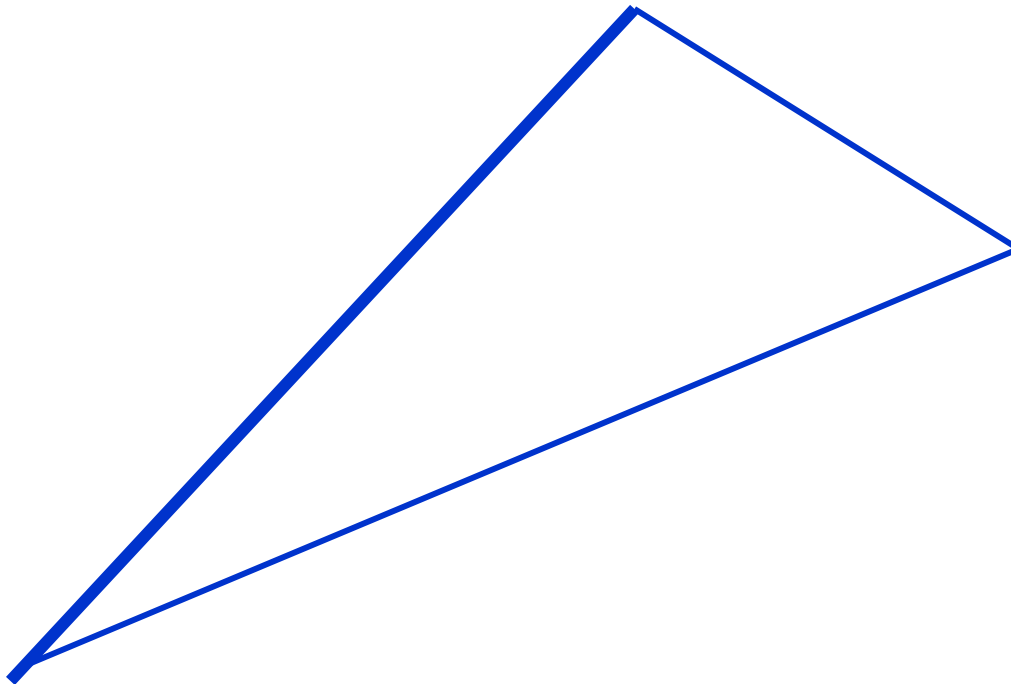
ECONOMY / ECONOMIA

**SOCIAL ASPECTS /
ASPECTOS SOCIALES**

The powers interpret sustainability to their interests

Los poderosos interpretan la sustentabilidad de acuerdo a sus intereses

ECOLOGY / ECOLOGIA



SOCIAL ASPECTS /

ASPECTOS SOCIALES

ECONOMY / ECONOMIA

EcoMaterials and EcoTechnologies is a concept to balance the magic triangle
EcoMateriales y EcoTecnologias es un concepto para balancear el triangulo



We need a holistic approach

Necesitamos una concepcion global



**There do exist serious intents to
create tools to measure the
environmental impact of
construction**

**Existen intentos serios de crear
herramientas para medir el
impacto ecológico de la
construcción**

•The life cycle analysis is now an accepted concept

•El análisis de los ciclos de vida ahora es un concepto aceptado





- **There exist methods to calculate embodied energy**
- **Existen metodos para calcular la energia incorporada**

**But there does not
exist a recipe-book !**

**Pero no existe un libro
de recetas !**

Figures given are not always reliable, even in prestigious publications

Cifras publicadas no siempre son confiables, aún de fuentes prestigiosas

CONSUMPTION OF NON RENEWABLE ENERGY FOR ROOFS							
ALL FIGURES CALCULATED BASED ON SIA DOCUMENT							
SITUATION FOR TYPICAL ROOFS IN SOCIAL AND MIDDLE CLASS HOUSING IN LATINA AMERICA							
INCLUDED TYPICAL TRANSPORT DISTANCES IN LATIN AMERICA							
FIRED CLAY PRODUCTS VARY ACCORDING TO QUALITY OF KILN							
					MJ/M2	LIFE EXP.	MJ/M2/YEAR
TIMBER STRUCTURE WITH GALVANIZED SHEETS CALIBRE 26				645	20	32	
TIMBER STRUCTURE WITH GALVANIZED SHEETS CALIBRE 32				452	12	38	
TIMBER STRUCTURE WITH ALUMINUM SHEETS				1468	25	59	
TIMBER STRUCTURE WITH CLAY TILES				144-294	50	3-6	
TIMBER STRUCTURE WITH MCR TILES				101	30	3	
CONCRETE SLAB				1920	70	27	
CLAY BRICK VAULT				210-730	70	3-10	

**What is appropriate under one circumstance
might be totally inappropriate in other
circumstances**

**Lo apropiado en ciertas circunstancias
puede ser totalmente inapropiado en otras**

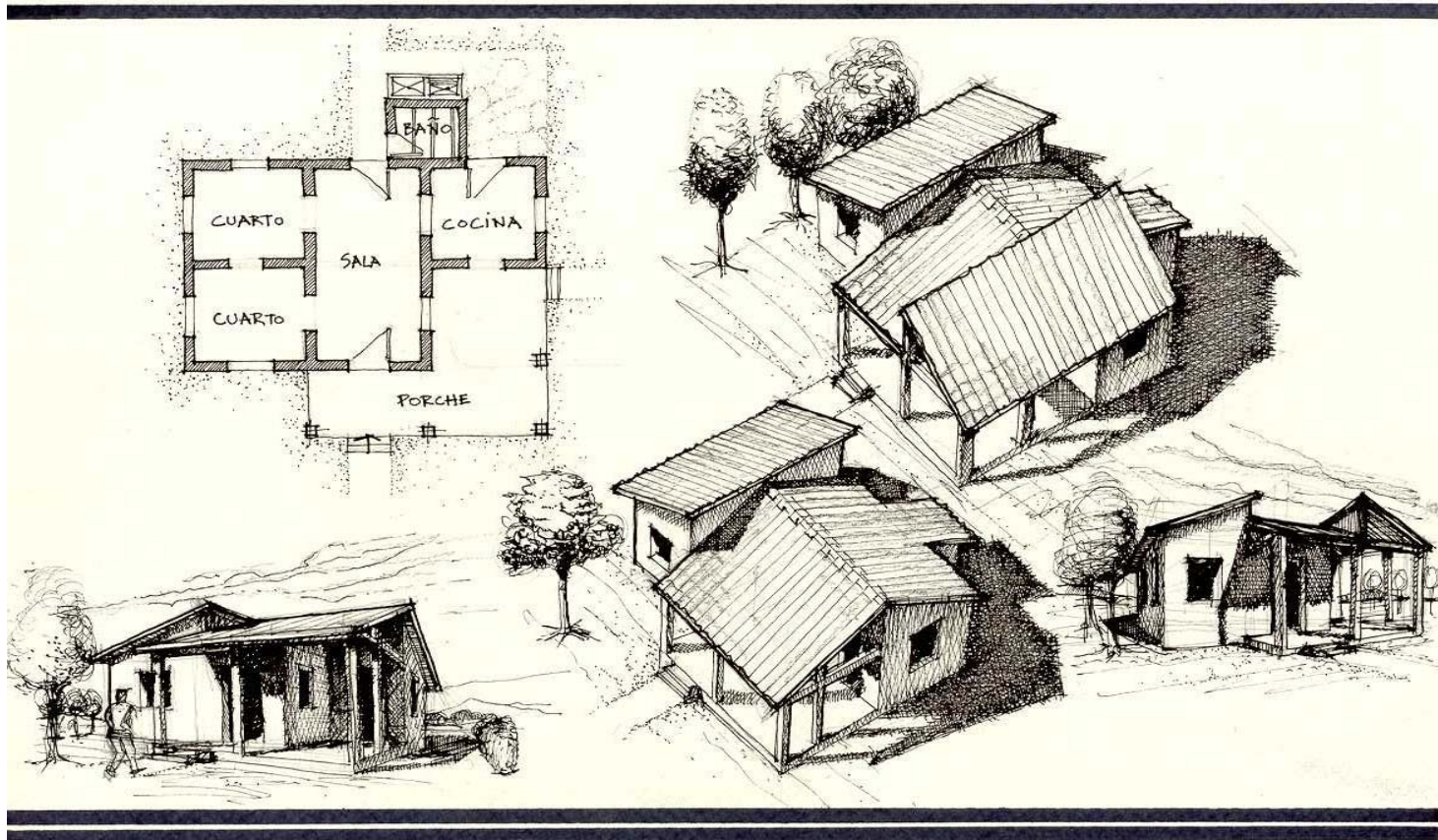


Are we taking our task seriously? Somos serios en nuestras tareas ?

- **The ethical conduct prohibits a medical doctor to prescribe without a thorough analysis of the patient**
- **El juramento etico de los medicos prohíbe prescripciones sin un analisis detenido del paciente**

**What might be ideal for Malacatoya, would
be a bad joke for London**

**Lo que es ideal para Malacatoya seria una
ridiculez para Londres**



**There are no good or bad materials, only
well used or badly used materials**

**No existen materiales buenos o malos,
solamente materiales bien o mal utilizados**

