



## **SOLAR THERMAL PROJECT MANAGERS (STMP)**

- 2012 -

## **INTRODUCTION TO SOLAR ENERGY**

- History of solar energy
- Historical trends in energy demand
- The different types of energy
- Solar energy
- Sunlight
- Influence of the atmosphere
- Global distribution of solar energy
- Uses and applications of solar energy

## **DESCRIPTION OF A SOLAR THERMAL ENERGY**

- The solar collector
- Fasteners
- Heat accumulator
- Piping
- Circulation Pump
- Control Equipment
- Optimum tilt of solar collectors
- Optimum orientation of solar collectors
- General construction of a solar panel for liquids
- Types of construction
- Heat transfer fluid
- Connections
- Stratification
- The heat exchanger of the site
- The auxiliary heater
- Expansion vessels
- Safety valves
- Installation of collectors in series and parallel

## **DHW SYSTEMS WITH POLYMERIC COLLECTORS**

- Collector characteristics
- Mechanism of ventilation and effect analysis
- Design
- Flow distribution
- Effect of freezing
- Evidence of water ingress
- Technical data
- Graphics efficiency
- Valves and accessories
- Installation diagrams
- Adaptation to the existing facility
- Institutional systems

## **DHW SYSTEMS BY INDIRECT HEATING**

- Introduction
- Certifications
- Compact thermosyphon
- Closed circuit system
- Equipment characteristics termosifonicos

- Main components
- Cylinder
- Safety valves
- Heat transfer fluid
- Assembly instructions
- Installing multiple compact
- Exploded

### **SOLAR POOL HEATING SYSTEMS**

- Introduction
- Basic Terminology
- System Design
- Components and Tools
- Hydraulics installation
- Connection to existing equipment
- Operation
- Troubleshooting

### **DHW SYSTEMS WITH VACUUM TUBES**

- Overview
- Forms of heat transfer
- Concept
- Vacuum tube collectors
- Types
- Applications of vacuum tubes
- Advantages and disadvantages
- Installation procedures
- Plumbing diagram

### **FACILITIES MAINTENANCE**

#### **HELPFUL INFORMATION**

- Weather in Argentina
- Table of estimated consumption
- The pressure drop in plastic pipes
- Control system for pools
- Control system for D.H.W.
- Unit Conversion Table