

I AM AN INTERNATIONAL AWARD WINNING ARCHITECT (JAPAN, Austria, Iran, Tuekey, Paris, Bulgaria) with Degrees in Architecture, VRCE VNIT, Nagpur,INDIA 1975, Post Grad Diploma in Industrial Product Design from IIT, Bombay, INDIA 1977, and Masters in interdisciplinary Civil and Architectural- Building Science and Technology, IIT Roorkee, INDIA 1983 and research on Solar Energy.

I have Executed many Township Projects LOKGROUP PROJECTS, Commercial Retail Shopping Malls NIRMAL LIFESTYLES, Multiplexes, 5 STAR HOTELS including HOTEL GRAND HYATT DOHA QATAR, Entertainment Complexes RAMOJI FILM CITY, Infrastructure Projects, IT Parks, SOLAR ENERGY Thermal and PV and published Papers in International conferences on Renewable Energy based Caravan Sarai at Sustainable Building 2000 at Maastricht, Holland, and Paris, TamGlass and Glass Processing Days Conference, Finland 2006, 2009, and now Shanghai, China May 2007, Solar Photovoltaics Conference at Paris, France and Dresden, Germany 2006.2009, European Biomass Conference Hamburg, Germany 2009. I have also executed several Solar Energy based projects

. Till 18 May 2008, I was in Qatar on a short term assignment for 6 months as Senior Architect for designing and executing Landscape and services 5 star Grand Hyatt at Doha, for a Contractor, where Hill International was a Project management Consultant.

Till 15 June 2006, I was working as Chief Architect on Retainer basis for Nirmal Lifestyles with permission to do outside projects and designing Multiplexes, Shopping Malls, 30 Storey 5 Star and 7 Star Hotels and very high end 30 -36 storey Residential Condominiums and Duplex Homes in a Shopping Mall Complex and Resorts outside Mumbai for another company. I was serving till 31 december 04 as Vice President- Realty, Architecture, Civil for an Infrastructure company and have done lot of Real Estate based Property Development Analysis including Financial Modelling for Deriving the Quotation Price of Land from IRR Rate of Return.

I normally do assignments either locally or by Internet abroad for North American and European Companies.

I can even provide Internet based AutoCAD 2000 as well as Adobe PhotoShop support by TELECOMMUTING for Architectural Design, Working Drawing and Detailing , Civil including Services Estimating and Costing and Quantity Surveying, Landscaping , Land Development, Building Services, Project Management and Turn Key Execution.

I have also been Prequalified for an International Competition for Redevelopment of Howrah Railway Station, Kolkata.

I am extremely fit, can swim a kilometer and open to Office for Design, Detailing or Financial Modelling Bidding for Projects, Site Execution (prefer) or Travel for Business Development.

I have not only designed but also executed construction of several Township projects including Services like Drainage , Water Supply, Storm water and River Diversion, Landscaping, Roads, Landfill and sewage Recycling etc

My Phone nos.- +91-22-25630969 My Mobile - +91-9867121517 My wife's messages only mobile c/o Dr.Ektate- +91-9892415779

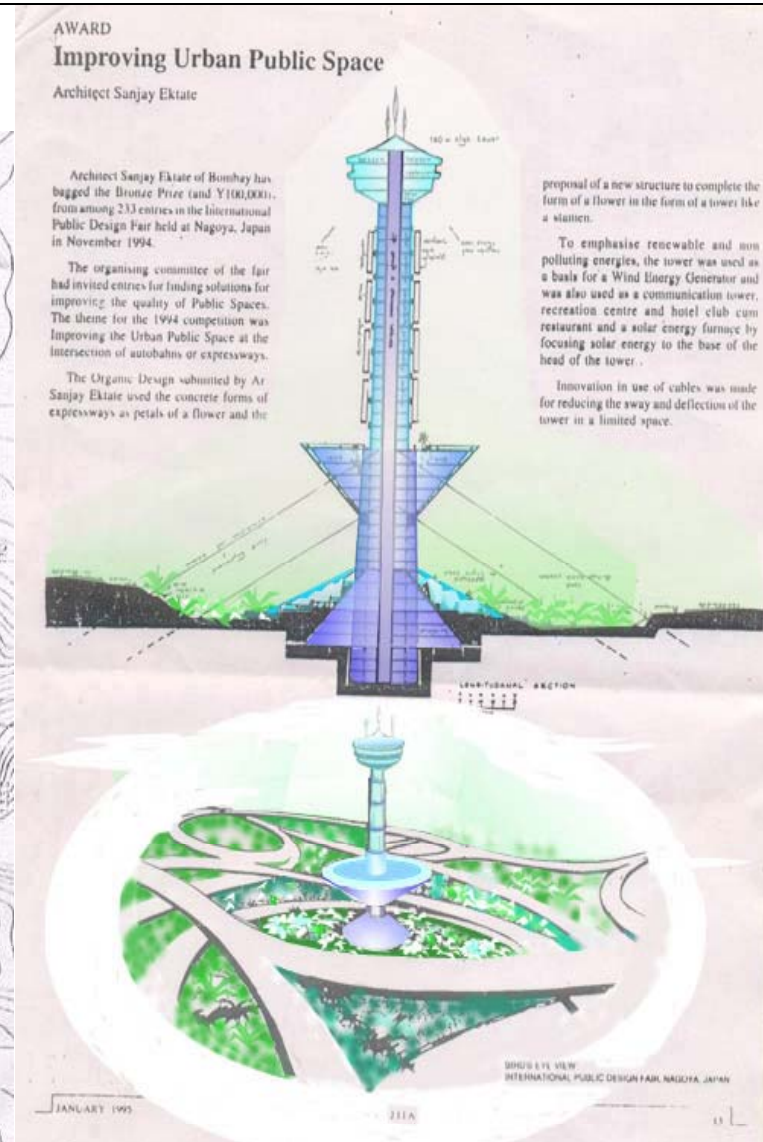
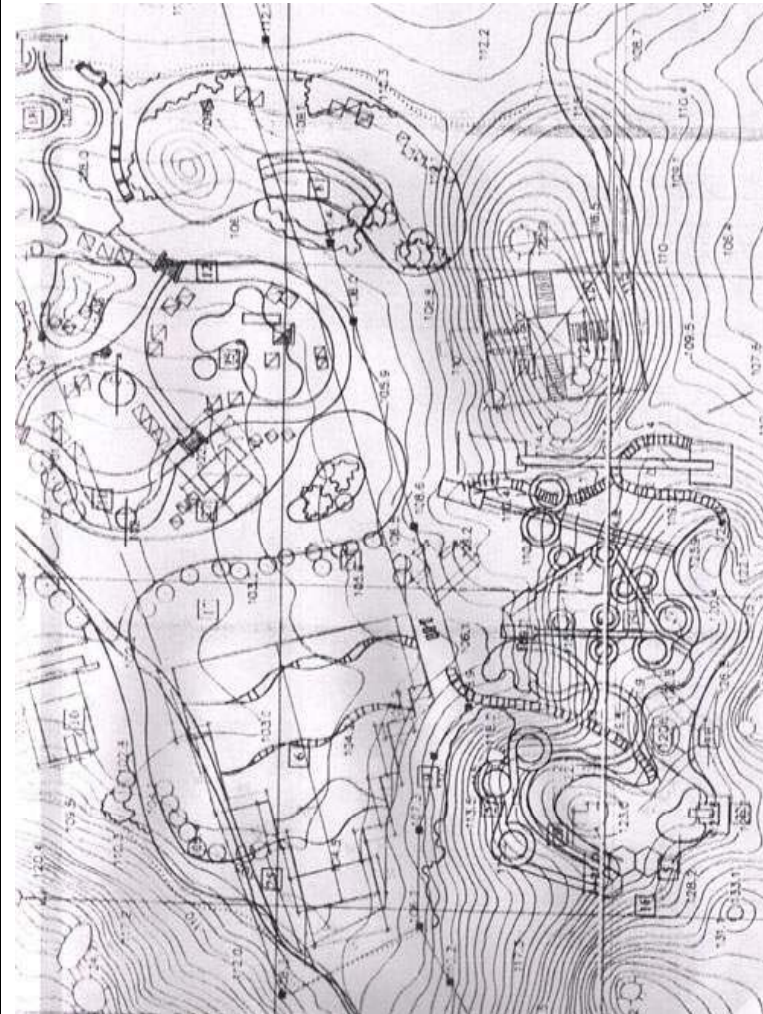
My present Address for Communication is as follows - Sanjay Ektate, c/o Dr. Anjali Ektate, 202, Kumar Hsg. Society, MHADA Layout, off Eastern Express Highway, Mulund (E), MUMBAI ,400081, India

Permanent Address – c/o AG Ektate, LB48 ,VHB , LIG colony no 1, LAXMINAGAR, NAGPUR, 440022, INDIA

regards

Sanjay Ektate Contact me is by email at snjyekt@vsnl.com and sanjay_ektate@hotmail.com

BRONZE PRIZE WINNER IN INTERNATIONAL ARCHITECTURAL COMPETITION, JAPAN , Austria, Iran



SANJAY EKTATE

Qualifications

(1) B.Arch(Hons.) 1970-1975 Nagpur University India 1975 Architectural Design, Building Constn, Town Planning, Bldng Materials, Landscaping, Bldng Services Drainage, Water supply, Acoustics, History of Arch. (2) DIIT (Industrial Design/Product Design), 1975-1977 IIT, Powai, Bombay, 1977, Industrial Design / Product Design Indian Institute of Technology, Bombay, subjects –Engineering Materials, Product Design, manufacturing Technology, Creative Designing, Ergonomics -Human Factors Eng (3) ME / M.Arch (Building Science & Technology- civil Engineering), 1977-1983 Roorkee University, 1983, Structural Analysis, Reinforced Concrete and Steel Design, Long Span Structures, Building Services, Project Management, Computer Technology, Optimization (4) Research on Solar Energy, 1979-1980 Solar Energy and Alternative Sources of Energy

Experience-

- (1) Product Development Engineer, Synthetic Foams Ltd., New Delhi, 1980-81 Building Thermal Insulation Structural Sandwich Panels of Rigid Polyurethane Foam for Air Conditioning, Mills
- (2) Contract Architect – Architect's Combine, 1981-82 Industrial Projects – Teksons, VIP, XLO
- (3) Assistant Professor, Goa Engineering College, Goa, 1983-84
- (4) Senior Architect- Architects Associated (1985-88) / Consultant-(1991-92) Township Projects – Millatnagar, AWHO, RNA, RBI, Industrial, Commercial and Institutional
- (5) Consultant and Retainer to Patell Batlivala Manohar (1988-93) for (a) Air India Competition, (b) UTI Office competition (c) Retainer NCPA-Homi Bhabha Auditorium, (1988-93) (6) Retainership for, Rusi Khambatta Associates, (1992-93) Chembur Hospital Project
- (7) Retainer Consulting Site Architect cum Civil Engineer to LOKGROUP – 1988-1996 RETAINERSHIP for 14 Phases of Township projects Project Site Architect and Engineer -1988-1996 for Site Design and Site Execution for Architecture, Civil, Landscaping, Building Services, Roads and Execution.
- (8) Consultant GOVT. OF INDIA & PUBLIC SECTOR UNDERTAKINGS, INDIA 1988-2007 Registered with Ministry of (a) Forest and Environment, (b) Agriculture, (c) Power Finance Corporation (c) Coal India Ltd, G(d) Western Coalfields, (f) Andhra Pradesh Government, Dept of Horticulture, (g) VIJAYWADA MUNICIPAL CORPORATION for Greenhouses, Landscaping, Aquarium, Zoo, Crematoriums, Turnkey Projects (9) Consultant to AB Gupta, MD, Concept Pharmaceuticals, 1999-2000 for Landscaped waterfall / Interior Waterfall, (10) CADD Consultant to Swabackpartners / Architre, USA, 2000 & 2001 (11) Project Manager for Ramoji Film City, Hyderabad, 2002 for Architectural and Conceptual Design, Detailing and Site Development for Disneylandlike Development in 2000 Acre Ramoji Film City with consultants from Universal Studios and Disney, USA, 2002
- (12) Consultant to Suhim Plantation, Surinam, South America, 2001-4 Consultant to Pahladsingh Holdings and Mapbit, Netherlands, 2000-4, For Afforestation Project, Worker's Village **Assignment Freelance Consultant to Mucon Construction, 2003 Designing Sector 5 of Dharavi Mumbai - 700 Crore Rs. or 160 Million US \$ and Nagpur slum development scheme for rehabilitating 10000 people
- (13) VICE PRESIDENT (REALTY) to ZOOM DEVELOPERS 2004 for Architectural, Civil Design and Coordination, Estimation, Bidding, Business Devp, Project development, Land Deals
- (18) Till 15 June 2006- CHIEF ARCHITECT on RETAINER BASIS for NIRMAL LIFESTYLES for SHOPPING MALLS, MULTIPLEX CINEMA THEATRES, 30 Storey 5 STAR 7 STAR HOTELS, 18 Storey to 36 Storey high end RESIDENTIAL COMPLEXES, MONORAIL, ENTERTAINMENT COMPLEX mainly as coordinator
- (19) –Hotel GRAND HYATT at DOHA, Qatar as Senior Architect for DESIGN, PLANNING, CONSTRUCTION SITE EXECUTION –For Landscape Design, External Development including Roads, Beaches, Swimming Pools and Waterbodies and Waterfalls, Drop Off Zones, Landscapes on Terraces, Lighting, Building Services like Master planning Drainage, Water Supply, Storm Water, Fuel Tanks etc.



INTERNATIONAL AWARDS AND COMMENDATIONS

- (1) **BRONZE PRIZE** at **INTERNATIONAL PUBLIC DESIGN FAIR, NAGOYA, JAPAN**. From 233 international architectural firms 1994 for Design of space at and around Intersection of 3 Expressways
- (2) **Invited for RIAPAC** by **International Union of Young Architects** to **PARIS CONFLANS**, international competition for **Ecological Design for Satellite Townships of Paris 1993** near River Marne and Expressway
- (3) Awarded Diploma of International Academy of Architecture, Interarch, Sofia, Bulgaria, 1994
- (4) Honourable Mention -International Small Home design competition, U.S.A.
- (5) Certificate of Presentation at Ecopolis Habitat, Exhibition, Istanbul, 1996.
- (6) **Award Suspension Foot over Bridge Competition Iran 2007**
- (7) **Finalist in 5 in Daylight Spaves Competition, Krems, Austria, 2007**
- (8) Orally Presented Paper on Renewable Energy Based Caravan Sarai at Sustainable Building 2000 Netherlands. (9) Invitation for Oral Presentation of Paper on Solar Photo Voltaic at Paris, France and Germany, 2004 (8) Invited Oral Presentation of Paper on Glass at TAMGlass Conference, Finland, 2001, 2003, June 2009 Shanghai, GPD China 2007 (10) Oral Poster Presentation Paper on Solar Photovoltaic Vehicles, 2006, Dresden, Germany, (11) Biomass Conf Hamburg, Germany June 2009,

References (1) Prof. S.A. Deshpande, Past President, Indian Institute of Architects, 88, West Park Road, Dhantoli, Nagpur, 440012, INDIA, Phone - +91-712- 2224427 (2) Vijay Gadkary, 504, Bldg. No. B2, LOKUPVAN Phase 1, Pokharan no 2, Thane (w), 400604, INDIA, Phone - (+91)- 9820309112, (3) Col. Ravi Deshmukh, Past Commandant Bengal Engineering Group, Roorkee and Operations Manager, Jacobs and Baktie India Mobile - +91-9327755022 (5) A.S. Pradhan, Former Vice President, LOK Housing & construction. Ltd. 203/B1, LOKUPVAN, Pokharan no 2, Thane (w), 400604, INDIA, Mobile - (+91)9890317513

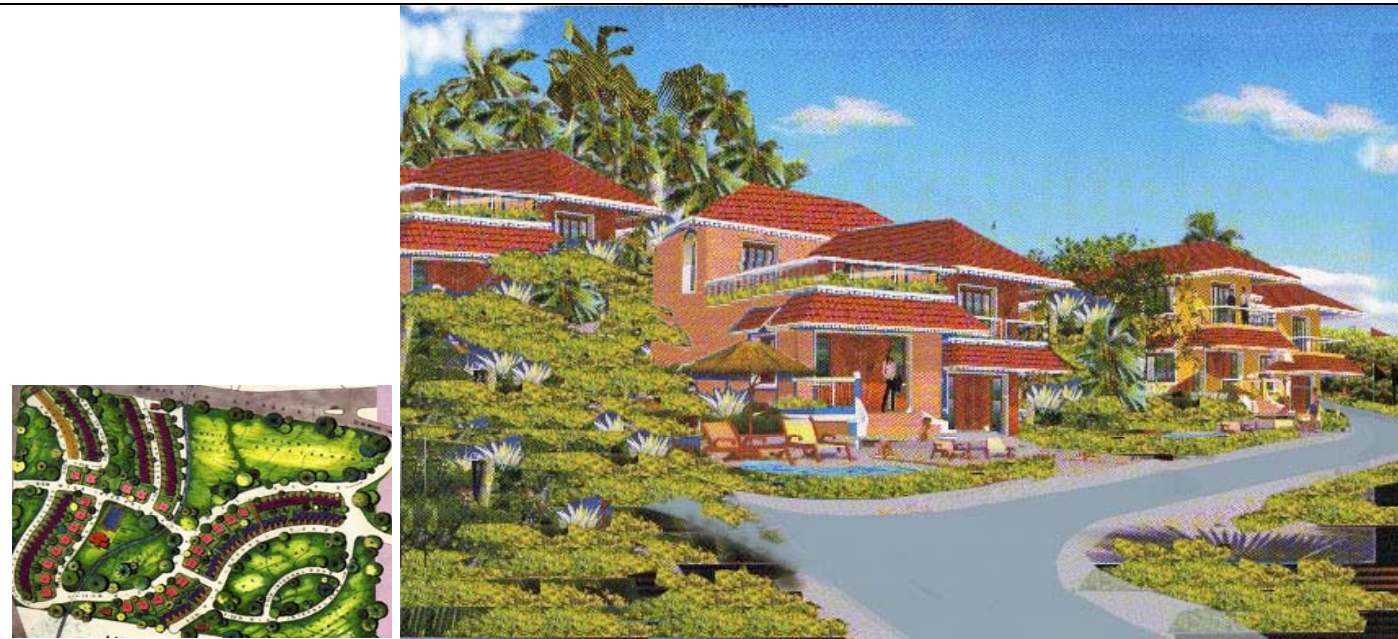
Renewable Energy Sustainable Construction Projects - I am presently Designing and Bidding for 3 Solar Photovoltaic and Thermal Power Projects including a Solar Photovoltaic Array Power Plant and a Parabolic Concentrator Thermal Power Plant and a Solar Furnace for a Natural Gas Cracking Plant to produce Hydrogen. I am also designing a weather monitoring and a Solar Energy Testing Facility and Laboratory. Active Thermal, - (1) Solar Flat Plate Collectors and Solar Cookers with reflectors several experimental but some sold including some with shaped foil concentrators. (2) Solar Grain Drying Godown - near Alathur, Kerala, South West India with Anodized Black Aluminium Corrugated sheets Heating AIR blown again falling Grain 1980-81-82. (3) Horizontal Aluminium Cylindrical Solar Concentrator for Distillation of Water and chemicals for a Chemicals and Pharmaceutical Unit 1995 Passive Thermal - Design Build Green Houses for Plants and Exhibition pavilions executed in Vijaywada Andhra Pradesh in South India 1996-98 with Air Coolers, Misters Foggers, Ultra Violet lamps (enclosing the project images). Fibre Reinforced Plastics with Polyesters and Glass Fibres on GI Pipe portal frames 1996 -98 - Solar Homes near Kotgarh, Shimla in Himalayas also some in Western Ghats for a resort 1982 -2006

Project Details of Major Projects

Shopping Malls - Nirmal Lifestyles Phase 1 and Phase 2 - 1 Million sq ft shopping space
Shopping Centers - (1) MILLATNAGAR, (2) GAODEVI (3) LOKGRAM (4) LOKDHARA (5) LOKNAGARI

Multiplexes Cinema Theatres - Nirmal Lifestyle Phase 1 and Phase 2 - 12 Cinemas PVR Cinema

Auditorium (1) NCPA - HOMI BHABHA AUDITORIUM (2) Tiki Theatre/ Alampanha, Spirit of Ramoji, Post Production, Jimmy's Drive Inn, Stunt Theatre etc. at Eureka, Ramoji Film City, Hyderabad Hotel (1) Nirmal Lifestyles Ph 2 - 5 Star and 7 Star 30 Storey Hotels, 600 crores (2) Guest Houses Jhalawad & Kota (3) Grand Hyatt - 5 Star at Doha, Qatar Hotel GRAND HYATT at DOHA, Qatar as Senior Architect for DESIGN, PLANNING, CONSTRUCTION SITE EXECUTION - For Landscape Design, External



Housing TOWNSHIP Complexes (1)AWHO, Oshiwara, Bombay Phases 1 and 2 (2) MILLATNAGAR, Bombay, 15000 to 20000 people (3) Air India Residential design (4) LOKPURAM-20 Acres (5) LOKGRAM-18 Acres , (6) LOKVATIKA (7) LOKDHARA -20 Acres- (8) LOKUPVAN -15Acres- (9) LOKUDYAN (10) LOKVILLA-30 Acres-30crores (11) LOKNAGARI-15 Acres (12) LOKAANGAN (13) Assignment CONSULTANT TO MECON CONSTRUCTION for designing SECTOR 5, DHARAVI, MUMBAI, 700 crore RS. or 160 Million US\$ for 100,000 people and NAGPUR SLUM DEVP. SCHEME for 10000 People. (14) 40 Storey 3 – 5 Nos. Skyscrapers for GherziI Eastern as Design Consultant, (15) Nirmal Lifestyles – Phase 1 – 5 Buildings (16) Phase 2 Residential S+20 storey 5 Buildings (17) Nirmal Kalpanagari – 7 Buildings upto 18 floors, (18) Nirmal Lifestyles Phase 4 – 36 Storey Building with Bungalows on Podium

Railway Station Howrah Railway Station Redevelopment Prequalified design Competition, Calcutta- Multipurpose Urban Space Design - Commercial

Bus Station cum Commercial Complexes – New Mandi Bus Station Design and New Kanpur Bus Station and Commercial Complex Design

Hospital - CHEMBUR HOSPITAL PROJECT (Superspeciality), (2) LOKDHARA HOSPITAL

Theme Park and Attractions - RAMOJI FILM CITY, Hyderabad -Hollywood Entry Plaza, Water Park, , Fun House, Tiki Theater, Hall of Fame, Earthquake, Jimmy,s Drive Inn, Stunt Show

School (1)LOKGRAM School, (2) Air India, (3) Masterplan, Keshavsrusti Residential School, (3) Officer Training Academy, 600 Acre Training college for Army Officers - Lecture Halls, Class Rooms, Library, Computer Center,Chennai

Swimming Pools (1)LOKVILLA (2) LOKNAGARI(3) DCM Pool &Boat Club,Kota (4) LOKUPAVAN

Landscaping, Afforestation &Gardens - (1)LOKDHARA 20acres (2) LOKVILLA (3) LOKNAGARI 15acres,(4) LOKPURAM , (5) LOKUDYAN 12acre, (6) GANDHI PARK ,RAGHVAIAH and AMBEDKAR Park, Vijaywada, (7) SWARGAPURI Crematoriums, Vijaywada, SUHIM Plantation Project – 96000 Hectare, Surinam, South America, (8) Hotel Grand Hyatt, Doha, Qatar, Sea Beach Resort, Waterfalls, Lakes, Gardens, Hardscape

Greenhouses - (1)Gandhi Park Greenhouse-Turnkey with Humidifiers&Coolers,Uvlamps, sprinklers, foggers (2)Rajiv ParkGreenhouse-Hi-Tech with Humidifiers /Coolers,Drip / Misters/ UV-Solar lamps

Factory , Sawmills and Factory Settlement (1) Teksons Pvt Ltd, Talegao, (2) VIP, Nasik, (3) XLO, Nasik, (4) Mazgaon Docks,

Interiors - (1)UPTRON , Sahibabad, UP (2) ONGC, Hazira, (4) NCPA, Homi Bhabha Auditorium, (5) Interiors of Model Flats Army Cantonment - 600 Acre Officer Training Academy, Chennai as Army Officer Training College with Lecture Halls, Class Rooms, Library, Head Quarters, Ladies and Gents Cadets Hostels, Cadets Mess, Parade Grounds, Equestrian Grounds, Football & Hockey playfields, Athletics & Gymnastics Stadiums, Swimming Pools, Shopping Center, Restaurants, Boating.

Bridges Steel FOB Foot over Bridge over Kalyan Railway Station (2) Steel FOB over River at LOKDHARA, (3)RCC Bridge over River at LOKDHARA, Kalyan, (4) ROB 700 M long at Sonipat (5) ROB 700 M long at Kurukshetra (5) Prize Suspension Pedestrian Bridge in Iran, (6) Olten Bridge Competition Switzerland

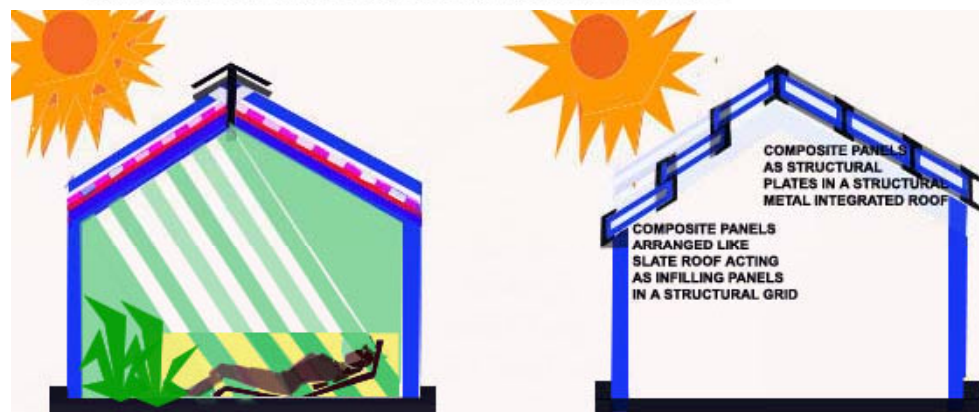
Miscellaneous -20ft (6M) high external water fall-with landscape and 5ft (1.5M) high internal waterfall (2) SWARGAPURI and other CREMATORIUMS, Vijaywada , (3) Schemes for AQUARIUM, ZOO, SUSPENSION Bridge cascading dish fountains, Vijaywada, (4) Solar Home / Solar Grain Drying Godown / Solar Distillery, (5) CAD Production Arizona Country Club , Arizona , US for Swaback Partners, US, (6) COMPERHENSIVE SERVICES LAYOUT AND EXECUTION including Drainage, Plumbing, Water Supply, Storm Water Drainage, Septic Tanks, Electrical Cable Trenches, Fire Fighting, Area Lighting, Foot Over Bridges of Steel, Roads, Road overbridges of RCC, Stream and River Diversions, Retaining Walls, Surveying, Site Development and Liasonwork for many LOKGROUP,s executed RESIDENTIAL COMPLEXES, as well as for RAMOJI FILM CITY, HYDERABAD (DISNEYLAND like complex)



GLASS and PHOTOVOLTAICS Composite Panels for FACTORIES with WIND Turbines as CAPTIVE POWER PLANTS
 Author – SANJAY EKTATE, and ANJALI EKTATE
 Address - A 202, Kumar, MHADA Layout, Mulund(E), MUMBAI, 400081, INDIA
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Synopsis - GLASS and Recycled PHOTOVOLTAICS Composite Panels for Roofs and External Envelope for FACTORIES augmented with recycled mirrors as Solar Concentrators and WIND ENERGY Turbines as CAPTIVE Renewable Energy POWER PLANTS on Western Sea Coast and in the Himalayan Ranges

- Abstract
- (1) Huge Power shortages, which are common in India, is forcing many big Factories to have their own Coal based Captive Power plants to avoid plant shutdown losses.
 - (2) Renewable Energy based Captive Plants avoid pollution and Solar Energy is plentiful in most of the India the year around, except the rainy season and complementary Wind Energy is plentiful along the Western Sea Coast during rainy Season.
 - (3) It is possible to achieve the best Complementary Combination of Solar Energy and Wind Energy to ensure a dependable power supply hybrid captive power plant for big factories on Western Seashore and Western Ghats and the Himalayas.
 - (4) Composite Panels made of Glass and Photovoltaic with reflectors, which act as Sunshades, can be used on Roof and the Outer Envelope of Factories to act as a Electricity and factory interior Day lighting illumination.
 - (5) Negligible Solar beam radiation in Rainy Season results in negligible Photovoltaic produced electricity, but the same Rainy season produces maximum sustained winds resulting in highly enhanced Wind Turbine Electricity generation.
 - (6) As Factories work at maximum input and output during Daylight Hours with heavier demand for electricity, when both Photovoltaic Solar Cells and Wind Turbines together produce the more than average electricity.
 - (7) Factories can work around the clock and some processes can be totally automated, so most of the Wind Turbine generated electricity can be consumed immediately even at late hours requiring relatively little Electricity storage.
 - (8) Wind Energy and Solar Photovoltaic can store the electricity in the same Batteries or other storage systems.
 - (9) With a Translucent Glass and Photovoltaic reflector Sunshades, it is possible to perfectly fine tune Natural Day lighting inside the factories from roofs and walls
 - (10) In the hilly western ghats and particularly the Himalayas, the entire demand for heating the factory interiors can be met by Passive Solar Heating due to Green House Effect.
 - (11) Recycled Broken Glass Mirrors on reshaped compound walls can be used as Focusing collectors for both Photovoltaic Electricity Generation i.e. Concentrating Light for greater overall efficiency of PV cells and also as Active thermal collection for Distillation or Solar Furnace in factories.

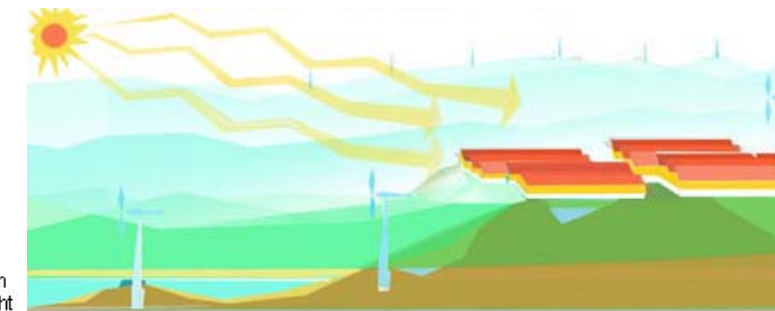
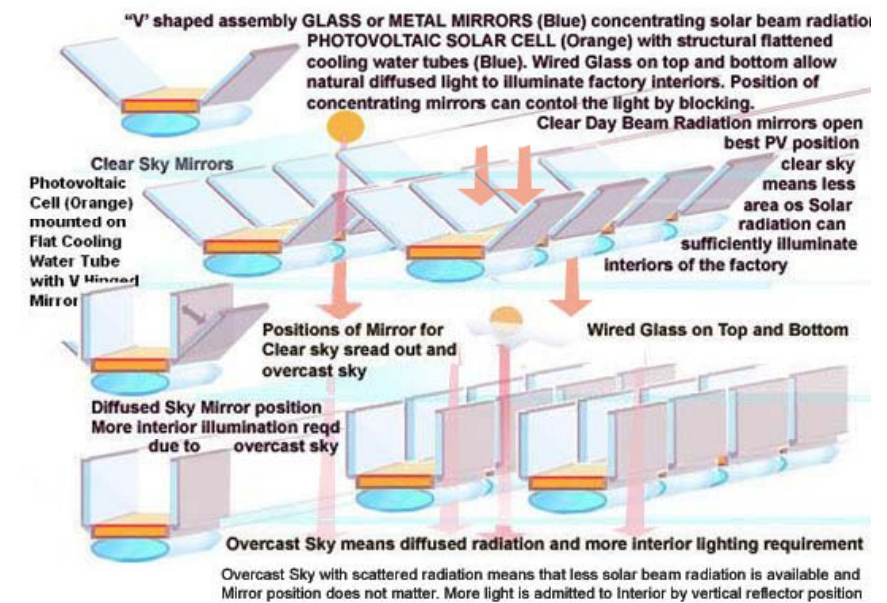


COMPOSITE SOLAR ELECTRIC HEAT LIGHTED GLASS HOUSE WITH DOUBLE OR TRIPLE PHOTOVOLTAIC PANEL AND GLAZING IN A COMPOSITE THERMAL AND STRUCTURAL INTERACTION
 COMPOSITE THERMAL - PHOTOVOLTAICS GET HEATED WHEN CONVERTING FOCUSED SOLAR ENERGY TO ELECTRICITY. HEAT REMOVAL BY WATER CREATES WARM WATER AND HEATED AIR IN AIR GAPS USED FOR PASSIVE HEATING OF INTERIORS OR EXITED FOR PASSIVE COOLING. COMPOSITE STRUCTURAL - TOP GLASS AND BOTTOM WIRED GLASS OR GRP CONNECTED BY SHEAR CONNECTORS - TOP GLASS IN COMPRESSION BOTTOM WIRED GLASS IN TENSION

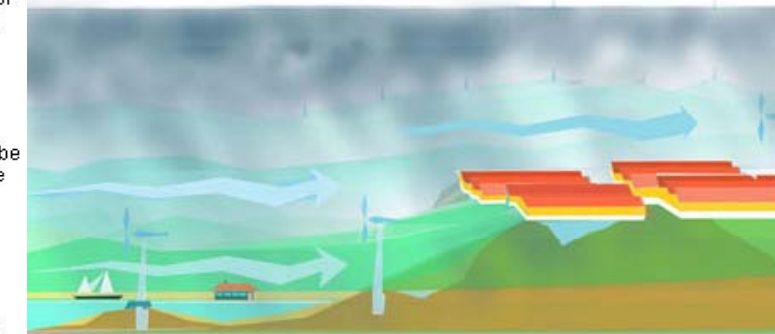
Booming Urban Population and Industrialization boom in India have resulted in increased power consumption resulting in huge Power shortages to the tune of 70000 MW, resulting in unpredictable power trip offs. The power cuts are forcing many big Factories to have their own Coal based Captive Thermal Power plants to avoid plant shutdown losses but such plants have resulted in pollution.

Replacing Coal Based Thermal Power Plants with Renewable Energy based Captive Power Plants will avoid pollution as Solar Energy is plentiful in most of the India the year around, except the rainy season and complementary Wind Energy is plentiful along the Western Sea Coast during rainy Season.

It is feasible to create an efficient composite energy management system which will make the maximum use of sunlight by focusing it on Photovoltaic to generate solar electricity economically, secondly extract part of the absorbed solar energy by cooling the Photovoltaic to increase the conversion efficiency and use the coolant water as heated water, thirdly use rest of the sunlight for controlled lighting of the Interiors, and fourthly use the solar radiation penetrating the interior for heating together with hot coolant water after cooling the Photovoltaic, either for space heating or as preheated water for boilers. It is necessary to work out the structural members and systems for the best structural, economical and energy harnessing reasons. Vertical photovoltaic and reflector strips give better heating and cooling characteristics and better structural behavior by acting as direct stress trusses. Fluorescent Liquid or Fluorescent strips, may be used for cooling by sun blocking or as coolant in 10% area, to be re-circulated at Night for nighttime diffused fluorescent Lighting.



INDIAN WEST COAST and EAST COAST - SUMMER AND WINTER plentiful Sunshine PHOTOVOLTAIC SOLAR ELECTRICITY during Day
 Good Sea Breeze and Land Breeze for Wind Energy



INDIAN MONSOON - RAINY SEASON - overcast sky - less Sunshine - Sustained Unidirectional Monsoon wind provides excellent Wind Power for Electricity Generation to compensate for deficit Solar Electricity Generation

The Problem with such a system is the intermittent availability of beam radiation of Sunlight, which limits the Generation of Solar Electricity only during bright light hours, while the factory is operational even during non sunlight hours. As Solar beam radiation is available only during Day on non cloudy days, either extra solar electricity more than the daytime requirements needs to produced and stored for operating the system during non sunshine hours or other sources of supply like the conventional Electricity or Energy from another Renewable Energy Source like Wind has to tapped during non sunshine hours.

The Hybrid Complementary System of Solar Day lighting through Glass, Solar Photovoltaic for Electricity, Heating with water heated while cooling the Photovoltaic, and Wind Energy to ensure a dependable power supply, augmented by or augmenting the conventional electric grid based system, can be developed as hybrid captive power plant for big factories on Western Sea shore and Western Ghats and the Himalayas.

In the high altitude colder areas, this hybrid combination can be substantially enhanced by Passive Solar Thermal energy, by trapping Solar Energy by Greenhouse Effect by using Glass Roofs and Walls.

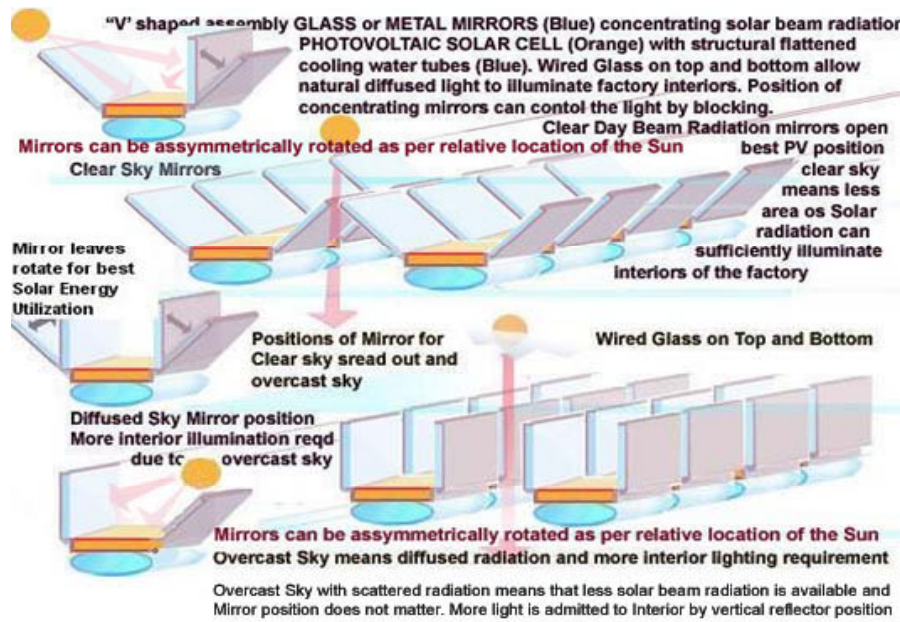
While generating electricity by focusing solar thermal energy for steam generation is a viable option on barren plateaus in the rain shadow zones of Western Ghats mountains and Himalayas, solar concentrators need space and more importantly a constant supply of water from a water course for generating steam, even during the drier months in the rain shadow zone.

Active, Passive, Photovoltaic (Mainly for Summer, Winter) and Wind Energy (Mainly for Cloudy, Rainy and very Windy Monsoons and Nights)with back up Storage and Grid Electricity. No feeding of excess electricity to Grid- As a Captive Power Plant For an upcoming major Pharmaceutical Plant in Goa, West Coast of India . Conceptual Case Study presentation already made 2006-2008

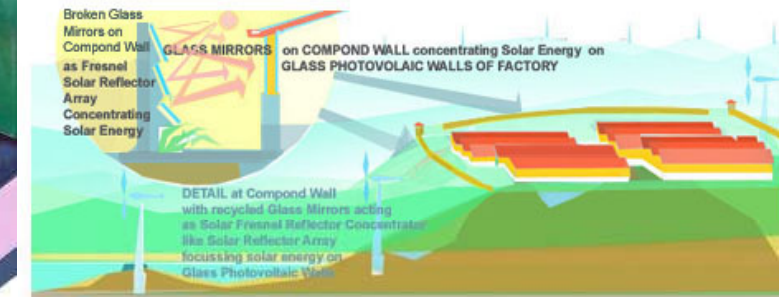
I am presently Designing and Bidding for 3 Solar Photovoltaic and Thermal Power Projects including a Solar Photovoltaic Array Power Plant and a Parabolic Concentrator Thermal Power Plant and a Solar Furnace for a Natural Gas Cracking Plant to produce Hydrogen. I am also designing a weather monitoring and a Solar Energy Testing Facility and Laboratory.

- (1) Solar Flat Plate Collectors and Solar Cookers with reflectors several experimental but some sold including some with shaped foil concentrators.
- (2) Solar Grain Drying Godown- near Alathur, Kerala, South West India with Anodized Black Aluminium Corrugated sheets Heating AIR blown again falling Grain 1980-81-82.
- (3) Horizontal Aluminium Cylindrical Solar Concentrator for Distillation of Water and chemicals for a Chemicals and Pharmaceutical Unit 1995

Composite Panels can be made of Toughened Glass or Laminated Glass or Wired Glass top cover. An air gap separates the top cover from a "V" shaped assembly of Photovoltaic cells flanked by metal or Glass Mirror leaf reflector acting as solar energy concentrators. The "V" shaped assembly is arranged linearly and repetitively arranged in a lower plane parallel to the top Glass Cover. The Photovoltaic and the flexible reflector Concentrator leaves also act as Sunshades and they can be used on Roof and the Outer Envelope of Factories to act as a Electricity Generators and can help create an optimally illuminated a controlled natural Day lighting factory Environment. The "V" shaped assembly system comprising of Photovoltaic cell with the flanking reflector concentrators module, can be linearly fixed on a backing of flattened metal tubes with flowing water, which can cool the Photovoltaic resulting in improved Solar Electric Conversion and in the process the water itself gets heated. A translucent wired Glass cover below the Photovoltaic Reflector Assembly diffuses light penetrating the Interiors from the gaps between the Photovoltaic reflector sunshade system and protection of the Interiors from any accidentally falling debris or broken glass. The two reflector leaves hinged on either side of every Photovoltaic, can be rotated symmetrically or asymmetrically at variable angles to collect solar radiation from varied best solar radiation acceptance angles from Sunrise to noon to Sunset, This independent movement of each reflector leave can be controlled by Photovoltaic sensors or computer simulations of positions of Sun and computer program giving the best results in any given sky conditions for Interior Day lighting and Photovoltaic Electric Conversion. A set of properly spaced wires in a specially designed wired glass sheet with a repetition of convex shaped embossing to accommodate wires, may help in creating Convex Lenses for focusing sunlight from a much larger area of top glass cover on to a much smaller Photovoltaic reflector area.



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As an extension of the Solar Energy Concentration system, exterior south facing, East and west facing Compound Walls and can have Recycled Broken Glass Mirrors in a Fresnel Mirror Profile can be used for Focusing on Glass Photovoltaic Hybrid system walls, for Photovoltaic Electricity Generation Concentrating Light for greater overall efficiency of PV cells and also as Active thermal collection for Distillation or Solar Furnace in factories. Every such Hybrid Renewable Energy system will have different ratios of optimal subcomponents varying as per for types of factory Chemical, size of factory, location of factory with variable natural resources. So financial modeling for each factory will help in creating the most optimum system that factory at that location.

BRONZE PRIZE WINNER IN INTERNATIONAL ARCHITECTURAL COMPETITION, JAPAN , Austria, Iran

SANJAY EKTATE

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