Long For Sustainability

b. Prevent toxic fumes and UV release during welding
   a. Minimize welding needed
      - Rivet as fastener
   b. Durability and minimum maintenance
      a. Zinc / Aluminium alloy coating
         - Corrosion resistance with metallization
   - Reduce weight & supporting beam needed
     - Construction with high strength low alloy Material

0.3% carbon in Yuen Long by will then help to reduce while bringing a bridge which equals to 2000 tonnes of CO2. We predicts that 8,000m sq. greened area also, there would be about 6,600 PV modules.

Carbon Reduction:
- Stimulates the utilisation to the bridge/skyway
- Enhance the urban image and landscape as a whole
- Encourages a variety of commercial developments
- Located on the main bridge

Market
- Located on the main bridge
- Encourages a variety of commercial developments
- Enhance the urban image and landscape as a whole
- Stimulates the utilisation to the bridge/skyway

Energy saving:
With the Solar energy system, 518,085 kWh of electricity will be generated each year. As well as having the piezoelectric energy system, another 87,600 kWh will be generated each year.
For the net energy balance, 522,465 kWh of electricity per year will be saved after consumed by LED lights and water pumps. Therefore, building the bridge will then help to save up to 500,000 kWh of electricity each year.

Net energy balance = 518,085 + 87,600 – (74,460 + 8,760) = 522,465 kWh/ year
- Piezoelectric energy system: 87,600 kWh/year
- Solar energy system: 518,085 kWh/year

Total energy generation:
- Water Pump for rainwater harvest system (quantity x 3): 8760 kWh/year
- LED lights (quantity x 1500): 74,460 kWh/year
- Thin Film Solar Energy
- Coverage: 30% of the total roof top area (2700m sq.)
- Efficiency: 8.7% (installation) * Performance ratio: 0.72
- Energy generated per year (including loss): = (2700m ² * 0.3) * 1000w/m² * 0.87 * 0.72 = 518,085 kWh/year

Total energy consumption:
- LED lights (quantity x 1500): 74,460 kWh/year
- Water Pump for rainwater harvest system: 8760 kWh/year

Our proposal includes a footbridge network which integrates different renewable energy systems to help reach energy-saving target in Hong Kong as well as to demonstrate an efficient water management system. The green compartment of the bridge is also a climate responsive architecture to reduce carbon emission through greening and obtaining sustainable neighbourhood.

The bridge is totally a high-performance building with multi-functional reconcile social relationship in harmonious way. Our goal is to enlarge the footbridge system scale and extend the concept to other regions.

Summary
The objective of our project is to promote sustainable neighborhoods and to enhance the quality of our built environment.

Our team is constituted by eight University students from three different countries.
1. Tommy Yap (Energy Science & Engineering, Hong Kong)
2. Calvin Gan (Energy Science & Engineering, Hong Kong)
3. James Khong (Energy Science & Engineering, Canada)
4. Edmond Ling (Architecture, Canada)
5. Joanne Lee (Architecture, Australia)
6. Antonia Wong (Geography and Resource Management, Hong Kong)
7. John Leung (Computing & Data Analytics, Hong Kong)
8. Roy Wang (Pharmacy, Hong Kong)
We are honoured to invite Professor Michael Leung from the City University of Hong Kong (Associate Dean from School of Energy & Environment) as our team consultant.

Our proposal includes a footbridge network which integrates different renewable energy systems to help reach energy-saving target in Hong Kong as well as to demonstrate an efficient water management system. The green compartment of the bridge is also a climate responsive architecture to reduce carbon emission through greening and obtaining sustainable neighbourhood.

The bridge is totally a high-performance building with multi-functional reconcile social relationship in harmonious way. Our goal is to enlarge the footbridge system scale and extend the concept to other regions.