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tseung kwan o desalination plant

13/WSD/17

Design, Build and Operate First Stage of

Tseung Kwan O Desalination Plant

Newsletter | ISSUE 06 | Winter 2021

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binnies Enhancing lives, communities and the environment

RO Racks Delivery via Victoria Harbour

Delivery of RO Modular Skids to ROB.

Moving of RO Racks with Hydraulic Skidding System

Moving on RO Racks in place

DfMA RO Racks
Delivery and Installation

The First Stage of Tseung Kwan O Desalination Plant, with production capacity of 135 million litres per day (Mld), will use the latest reverse osmosis (RO) technology to provide Hong Kong with a strategic water resource that is not susceptible to climate change, with provisions for future expansion to the ultimate water production capacity up to 270 Mld. The modular skids desalination plant will collect seawater from nearby Joss House Bay (Tai Miu Wan) and remove dissolved salts and impurities from seawater to turn it into potable water. The plant is targeted to be commissioned in 2023.

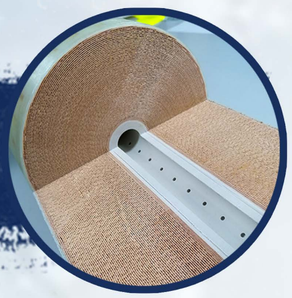
The project team has been working collaboratively to overcome a range of challenges on the prefabrication, assembly and dispatch of the RO modular skids, which has now been successfully delivered for the construction of this critical waterworks infrastructure to enhance the resilience of fresh water supply in Hong Kong.

The first batch of off-site prefabricated reverse osmosis (RO) modular skids produced in Nam Tong City (南通市) of Jiangsu Province, Mainland China has been delivered and now in place at the site for final assembly.

The RO tubes in the modular skids are the major components for removing dissolved solids during the seawater desalination process. The first batch delivery consists of 4 nos. of skids, each has a dimension of height 9.5m x length 9.2m x width 8.2m that weighs 90 tonnes, and contains 236 nos. of RO tubes with a diameter of 200mm. The installation of the RO skids has adopted Design for Manufacture and Assembly (DfMA) technology to advance the construction programme and enhance the project's efficiency, safety, and quality.

RO RACK DELIVERY AND INSTALLATION VIDEO

RO Rack:
85 Tones
1st Pass : 8 nos. x 85 Tons
2nd Pass : 4 nos. x 26 Tons



RO Membranes:
8"dia x 40" long
1st Pass: 236 nos. / rack
2nd Pass: 112 nos. / rack

Bogies:
Individual turning axles, with each axle having a hydraulic jack enabling the operator to balance the cargoes while delivering.

Hydraulic Skidding System:
Multiple units / connection of the modular skidding guide rails
Hydraulic jack push and pull capability
Equipment placed on skidding seats, no direct pushing contacts
No grease required

Occupational Safety and Health Council
22nd Construction Safety Award

To continuously enhance the safety standard of the construction industry, the Occupational Safety and Health Council organizes the "Construction Safety Promotional Campaign 2021" in collaboration with government departments and relevant stakeholders from the industry, including organizations, chambers of commerce, and labor unions. The campaign aims at enhancing the awareness of workers about working safely in the construction industry and fostering the culture of occupational safety and health.

We are very honored to receive three bronze awards for **Best Safety Culture Site, Best Safety Culture Subcontractor and Best Safety Project Manager** in the 22nd Construction Industry Safety Awards.

TKODP Safety Culture Video

Smart Safety Devices - AI Cam

CCTV Camera with Artificial Intelligence (AI) Functions

Currently, there are 4 nos. of CCTV Camera with AI functions installed on our site. The main function of those cameras is to detect the site staff's safety behaviors and to issue alerts when malpractices are detected.

By the use of the cameras, the supervision and monitoring resources on routine inspection can be saved since the CCTV AI cameras can work continuously without human effort. Meanwhile, **the AI recognition functions can be tailor-made to suit the actual need for our site, such as different types of PPE or different danger zones**.

Moreover, the alert messages can be sent to the safety team and site management team for immediate follow-up actions and the malpractice images can be stored in the cloud server for exploring potential improvement measures.

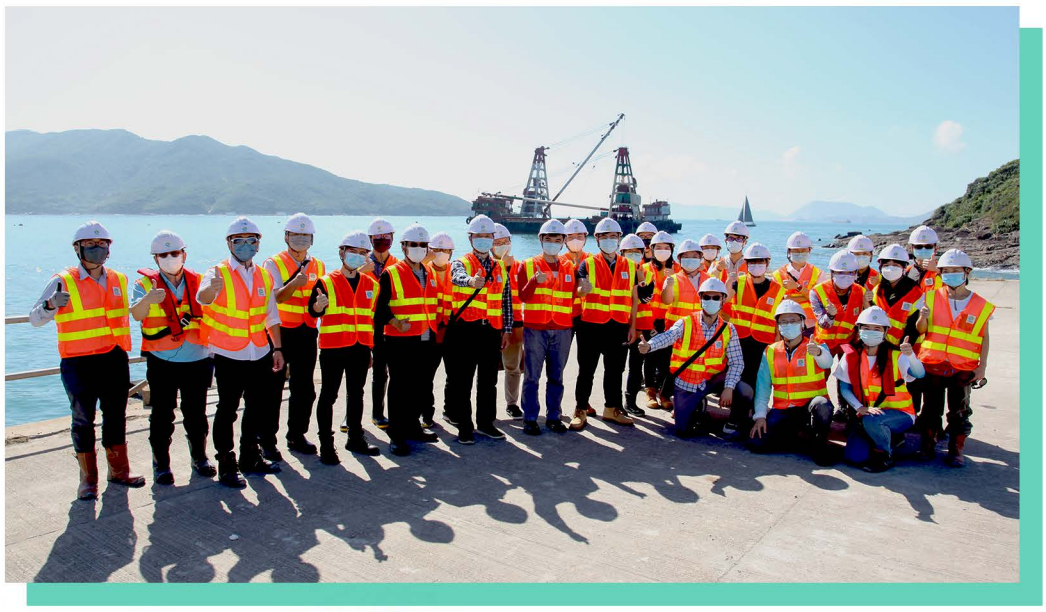
INTRODUCTION VIDEO

Site Visit at TKODP

LOCPG
Liaison Office of the Central People's Government

Celebrate China National Day

5 October 2021



H.K.U. Engineering Alumni Association

6 November 2021

HKUEAA
H.K.U. Engineering Alumni Association
香港大學工程舊生會

WSD Employee Union

22 November 2021

水務署
Water Supplies Department

FMD of CEDD

2 December 2021

YOUNG MEMBERS COMMITTEE
青年會員事務委員會

HK工E THE HONG KONG INSTITUTION OF ENGINEERS

HKIE Young Members Committee

18 December 2021

TKODP BEAM Plus Achievement

HKGBC BEAM Plus 綠建環評

On 3 September 2021, our Project was awarded **Platinum rating in the Provisional Assessment of BEAM Plus New Building (Ver. 1.2)**, with a very high score of 88.5! It demonstrates our efforts and commitment in the pursuit of Hong Kong's green construction and sustainable communities.

Do you know what is BEAM Plus? BEAM Plus is a set of green building assessment tools specially designed to evaluate building sustainability in Hong Kong. It aims to reduce the adverse environmental effects of buildings whilst providing a high-quality built environment. BEAM Plus provides authoritative guidance on performance standards in a range of planning, design, construction, operation and management provision issues for developers and owners to pursue.

Here are some of the major sustainable features we have adopted in the TKODP:

Site Aspects

32% site area as greenery to enhance the quality of living environment. Implement the Urban Design Guidelines presented in Chapter 11 of the Hong Kong Planning Standards and Guidelines published by Planning Department.

Materials Aspects

Flexible design of services to allow maximum adaptability of indoor space usage.
Over 50% of all timber and composite timber products used were from sustainable sources or recycled timber.

Energy Use

1832 pieces of photovoltaic panels on roofs to generate renewable energy for 16% of total energy usage, combined with other energy efficient designs for a total of 30% reduction.

Water Use

Saving of 67% irrigation water through rainwater harvesting and selection of local plant species. 58% reduction of annual sewage volume through efficient water systems such as dual flush water closet.

Indoor Environmental Quality

Multiple designs to reduce the potential for transmission of harmful bacteria, viruses and odours.
Design lighting to optimize the performance of illuminance, glare index and colour rendering index.

Innovations and Additions

Use of BIM to enhance the design process and collaboration with cost and time effectiveness throughout the project life-cycle.

To learn more about other achievements of the Project, take a look at the online exhibition:
http://greenbuilding.hkgbc.org.hk/projects/view/358

GREEN@COMMUNITY

The GREEN@COMMUNITY (綠在區區) is the community recycling facilities which is organized by the Environmental Protection Department (EPD) and comprises Recycling Stations, Recycling Stores and Recycling Spots with services covering all 18 Districts of Hong Kong with an aim to encourage the public to go green and instill a green living culture in the community. The community recycling network has more than 130 public collection points for plastics, glass bottles, small electrical appliances, compact fluorescent lamps/tubes, rechargeable batteries as well as common recyclables such as waste paper and metals.

To echo with the EPD's promotion on waste reduction and recycling, our site office has set up Three-colored Waste Separation Bins for sorting and collecting recyclable wastes. Starting from December 2020, our Project Team Members including RSS and AJCJV, have regularly taken those collected recyclable wastes to the GREEN@KWUN TONG (綠在觀塘) Recycling Station for recycling. The recyclables collected by the Recycling Station will then be delivered to the downstream recyclers for subsequent processing.

By October 2021, over one ton of recyclables including paper, cardboard packing, plastic, and metal, etc. were collected from our site office and disposed of at GREEN@KWUN TONG and some waste recyclers.

In addition, our Project Team has signed up for the EPD's "Glass Container Recycling Charter" in July 2021 to raise awareness on glass container recycling. Those disposed of glass containers in our site office will be collected by the designated glass management contractor appointed by EPD. After the treatment process, they will be used for the production of cement, eco-pavers, or used as fill materials in various Public Works Projects.

Well done, Project Team! Let's keep on this good recycling practice.

COMING 3-MONTH CHALLENGES

- Delivery of DfMA Wall Panels to Site
- Retrieval of Tunnel Boring Machines from Outfall and Intake Cofferdams
- Underdrain and Skimmer Installation in ActiDAFF Cells
- Welding of Super Duplex Stainless Steel Pipe
- GRP Pipe Pressurization

Food Angel

FOOD ANGEL 惜食堂 by Bo Charity Foundation

WASTE NOT HUNGER NOT WITH LOVE
FOOD RESCUE & ASSISTANCE PROGRAM

Are you feeling slightly stressed and overwhelmed at work? Do you need a break from your workweek routine and your boss?
We have just the remedy you need! Come join us for our next community service.

We guarantee you will feel refreshed and satisfied afterwards, knowing that you have made a difference to our local needy and underprivileged communities.

On 9 Dec 21, a group of 7 colleagues went to help out at Food Angels Central Food Processing Centre. We prepared food ingredients by cutting up vegetables and crushing frozen beans while chit chatting amongst ourselves. Time flies during good times, 3 hrs passed by quickly and the centre was closing for the day. We left the centre feeling grateful and satisfied that we have contributed a bit to help our community.

Food Angel is a food rescue and food assistance program launched in 2011. The programme rescues 35 tonnes of edible surplus food from different sectors of the food industry each week that would otherwise be disposed of as waste. Following strict safety protocols, the rescued food items will then be prepared into 15,000 nutritious meals and food packs in their central kitchens. They will be distributed to serve the underprivileged communities in Hong Kong.
https://secure.foodangel.org.hk/iVolunteer/CampaignListing.aspx#PreVeg

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