



CLEAR WATER  
TECHNOLOGY

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Design  
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# Aquatic Consultancy with 20+ years of experience

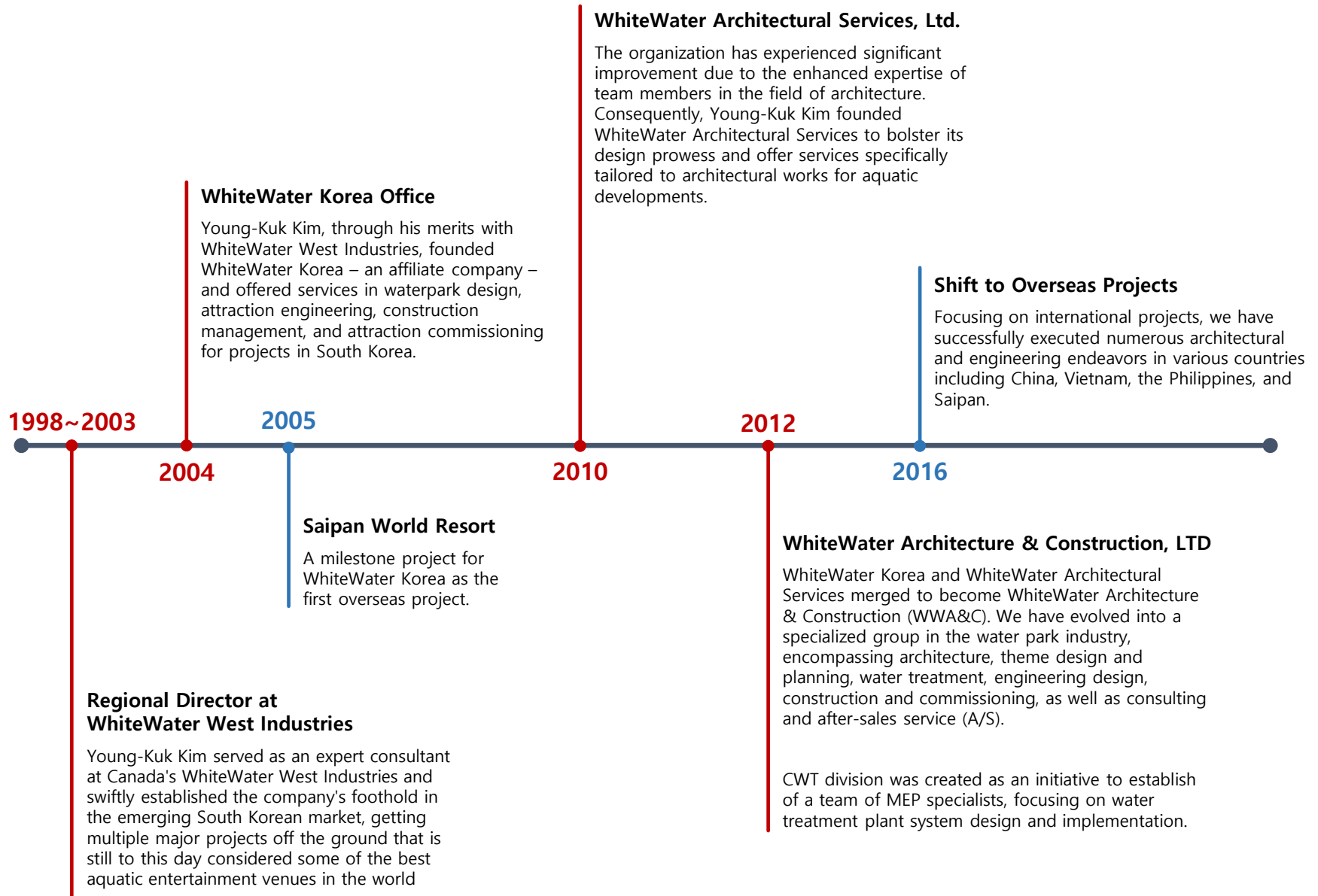
**“We strive for world-class, crystal-clean waterpark environments”**

CWT provided its expert services in the waterpark design industry for more than 20 years. Our strong fundamental understanding of aquatic venue planning, and system engineering allows us to produce practical designs that blends with aesthetics and function. We specialize in nearly all things aquatic entertainment: design & engineering, water treatment equipment supply, wave lakes, rivers, authorship supervision, installation supervision, construction management, and more.

All our design and engineering works abide by the Association of Pool and Spa Professional’s (APSP) International Swimming Pool and Spa Code, as well as the Deutsches Institut für Normung (DIN) standard.

CWT prides itself in providing our clients with aquatic design and consulting services of the highest fidelity, as well as supplying competitively priced, state-of-the-art equipment that are carefully selected to meet the exact needs of a venue.

# Company History



## NOT JUST A JOB

Building **lasting relationships** with clients by figuring out and fulfilling their needs is our top priority.

We want to help you **build the future you envision.**

## HIGH QUALITY

We strive for nothing less than **impeccable**. From our designs to the equipment we supply, CWT provides the **most economic and efficient** options for our clients.

## CREATIVE APPROACH

With the industry's **everchanging demands and innovations**, our team is always searching and investigating **new technologies and methods of implementation** and meet new challenges head-on.

# 7 STEP PROCESS

1

**PLANNING**

Site investigation,  
Design Team direction,  
Master plan.

2

**SCHEMATIC DESIGN**

Development of concept design  
to be more feasible, practical, and  
efficient.

3

**DESIGN DEVELOPMENT**

Development of schematic design in consideration  
of various construction conditions.

4

**CONSTRUCTION DRAWING**

Integration of drawings made into a complete package with  
translation of project into reality  
(includes mechanical room 3D design).

5

**EQUIPMENT SUPPLY**

Supplying of Wave Lake systems, river systems, and main equipment for water  
treatment systems such as filters, pumps, disinfection equipment, sterilization  
equipment, and IPM system.

6

**INSTALLATION SUPERVISION & CONSTRUCTION  
MANAGEMENT**

installation supervision and construction management of aquatic  
attractions and water treatment systems.

7

**COMMISSIONING & MAINTENANCE**

Commissioning and testing for aquatic attractions  
and water treatment systems, including maintenance  
support.

## DESIGN

- Mountain Wave Lake Village
- Wave Lagoon
- Various river
- Waterpark
- Spa

## MEP

- Water treatment system
- IPM system integration
- HVAC

## AQUATIC DESIGN

- Master Plan
- Architecture/Theme
- Pool & Ride Architecture

## WATER TREATMENT EQUIPMENT SUPPLY AND INSTALLATION

- Filters (perlite filter, activated carbon filter, sand filter)
- Pump (in-line pump, double suction pump)
- Chemical equipment (sensor, controller, dosing pump, chemical tank)
- Pump strainer
- UV system
- Ozone system
- Bade pool system
- Sodium hypochlorite system
- Water treatment control panel & system integration
- IPM system(Intelligent Pumproom Management System)

## STEEL SUPPLY SERVICE

- Review attraction engineering drawing
- Submission of shop drawing
- Purchasing raw materials and manufacturing products
- Inspect product specification and welding point
- Hot Dip Galvanizing and finish paint (client option)
- Packing and delivery of products



## SUPERVISION SERVICE

### **Installation Supervision Service**

- Inventory of Attraction material: check for missing/invalid parts
- Conduct confirmation survey to ensure construction is in accordance with Construction Drawings
- Confirm locations of Pedestals and Anchors by survey
- Inspection of the concrete structure of attractions
- Advise and review construction of the mechanical room structure
- Advise the Attraction FRP assembly, guide and advise site installation
- Training & Commissioning before operation

### **MEP Supervision Service**

- Calculation of the load of the mechanical and electrical
- Goods inspection: check for missing/invalid parts
- Check the goods of water treatment piping, advise the installation of the sleeve, route, testing etc.
- Confirm the arrangement and specification of the equipment installation, guide the commissioning
- Confirm and advise the chemical dosing equipment installation
- Confirm and advise the water level control of the balancing tank
- Confirm and advise the electric wiring work

### **Steel Supervision Service**

- Steel shop drawing review
- Review and confirm raw material of steel
- Review and confirm the dimensions of the fabrication
- Quality check of welding work and submission of NDT report
- Quality check of Hot Dip Galvanized goods
- Check markings on goods to ensure proper designation on site during construction
- Provide fabrication priority

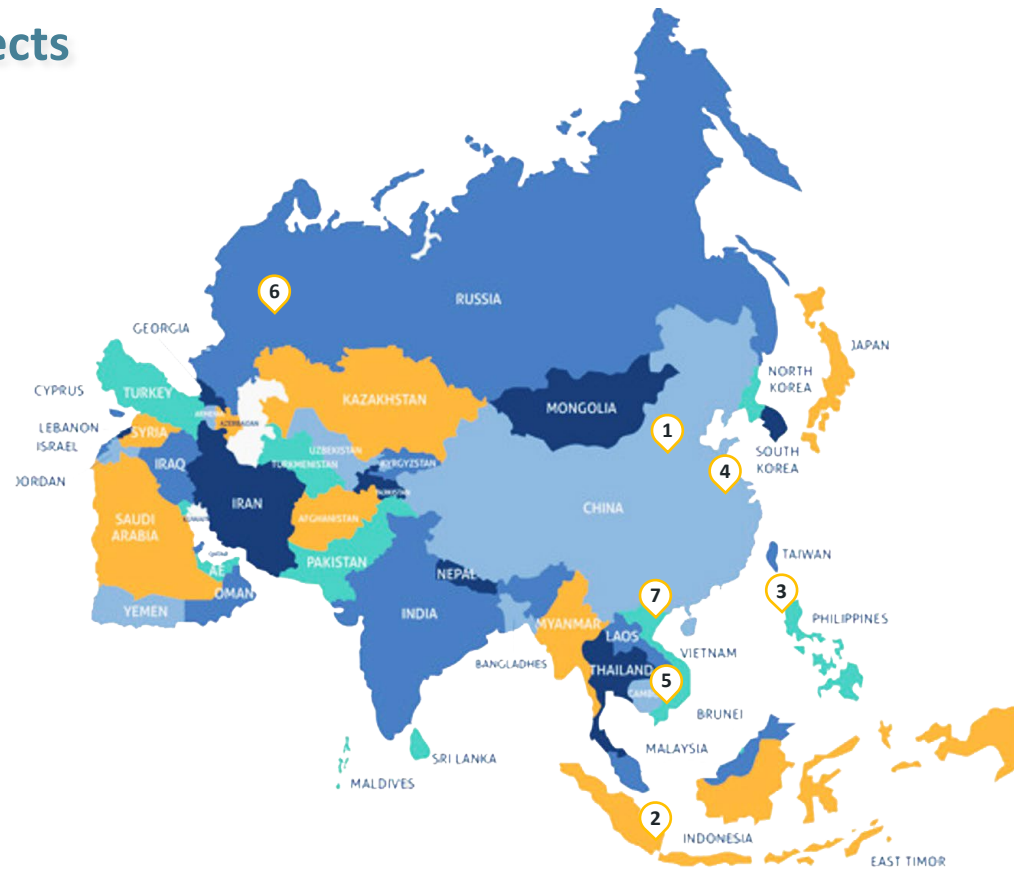




# Experience

# International Projects

(Architecture/Theme Design)



**1** Beiguo Waterpark  
China (2016)

**3** Aqean Bay Waterpark  
Philippines (2018)

**5** Summerland Waterpark  
Viet Nam (2019)

**7** Ha Long Wave Lagoon  
Viet Nam (2020)

**2** Paluabara Waterpark  
Indonesia (2016)

**4** Winta Splash Waterpark  
China (2018)

**6** Sport Complex Olympic  
Russia (2020)

# International Projects

(Water Treatment)



**1** Yinji Xinmi Waterpark  
China (2015)

**2** Beiguo Waterpark  
China (2016)

**3** Vana Nava Waterpark  
Thailand (2016)

**4** Paluabara Waterpark  
Indonesia (2016)

**5** Boombara Waterpark  
Indonesia (2017)

**6** Aquatopia Waterpark  
Viet Nam (2018)

**7** Winta Splash Waterpark  
China (2018)

**9** Dhaka Waterpark  
Bangladesh (2018)

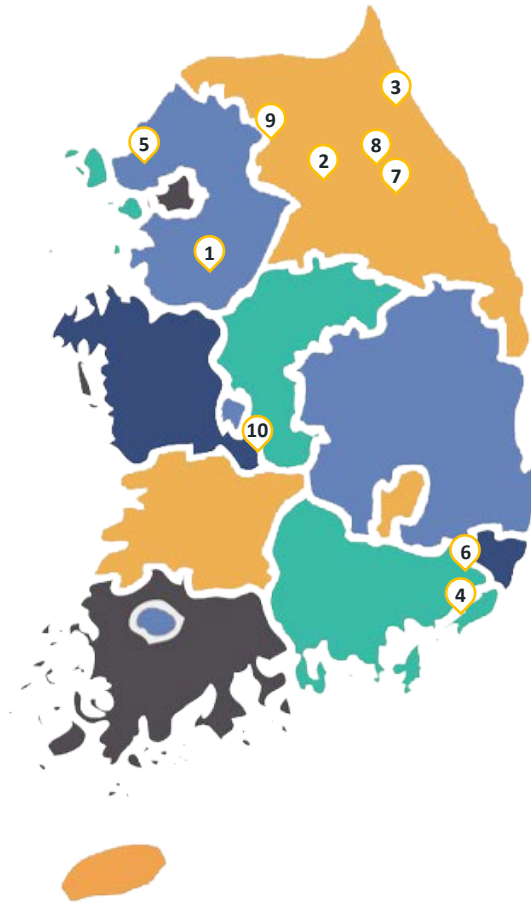
**11** Hilton Hotel Doha  
Qatar (2020)

**8** Aqean Bay Waterpark  
Philippines (2018)

**10** Ha Long Bay Wave Pool  
Viet Nam (2020)

**12** Sport Complex Olympic  
Russia (2020)

# Domestic Projects



**1** Caribbean Bay (1996-)  
Gyeonggi-do Yongin-si

**3** Hanwha Hotel & Resort (2010)  
Sokcho-si, Gangwon-do

**5** One Mount (2012)  
Goyang-si, Gyeonggi-do

**7** High 1 Water World (2018)  
Jeongseon-gun, Gangwon-do

**9** Lego Land Korea (2020)  
Chuncheon, Gangwon-do

**2** Ocean World (2005-2014)  
Hongcheon-gun, Gangwon-do

**4** Ocean Bay (2012)  
Geoje-si, Gyeongsangnam-do

**6** Lotte Waterpark (2014/2015)  
Gimhae-si, Gyeongsangnam-do

**8** Shinan Wellhill Waterpark (2020)  
Hoengseong-gun, Gangwon-do

**10** Mountain  
Wave Lake (2022)  
Daejeon-si

# Design Experience

Project	Contract	Location	Contract Year	Remarks
~	~	~	~	~
Saipan World Resort Waterpark	World Resort	Saipan, USA	2005.06.16	Archi/Theme SD, DD
Ocean world Extreme River Zone	Daemyung Resort	Hongcheun, Kangwondo, South Korea	2006.02.20	Archi/Theme SD
Ocean world Surf Wave Zone	Daemyung Resort	Hongcheun, Kangwondo, South Korea	2006.10.31	Archi/Theme SD
Hanwha Seorak Waterpia Expansion(Phase2) -Outdoor waterpark Expansion -4D theater	Hanwha Hotel & Resort	Seorak,Kangwondo, South Korea	2008.05.20	Archi/Theme SD, DD, CD
Hyundai, Taeon-Enterprise city Phase1, Waterpark in golf resort	Hyunchong architects & engineers Ltd.	Taeon,Chungcheongdo, South Korea	2008.12.04	Archi/Theme SD
Lotte Jamsil Ice rink Renovation	Lotte world	Jamsil, Seoul,South Korea	2009.03.31	Archi/Theme Concept
Hanwha Seorak W.P SPA building maelstorm, WaterPlay Zone	Hanwha Hotel & Resort	Seorak, Kangwondo, South Korea	2010.01.29	Archi Engineering SD, DD, CD
Ilsan Onemount waterpark	One mount	Ilsan,Kyungkido, South Korea	2010.09.01	Archi/Theme SD, DD
Lotte Gimhae waterpark	Archi plan	Kimhae,Kyungsangdo, South Korea	2010.10.00	Archi/Theme SD Revision, DD, CD
Ocean World Python & Whizzard Zone	Daemyung Resort	Hongcheun, Kangwondo, South Korea	2010.10.26	Archi Engineering SD, DD, CD
Caribbean bay Expansion	Samsung Everland	Yongin, Kyungkido, South Korea	2010.12.30	Archi Engineering SD, DD, CD

# Design Experience

Project	Contract	Location	Contract Year	Remarks
Ocean World Super Extreme River 2	Daemyung Resort	Hongcheun, Kangwondo, South Korea	2013.12	Archi+Engineering
High-one Waterworld Construction-Documentation Value Engineering	Dongbu corporation	Jungsun, Kangwondo, South Korea	2014. 10.	Value Engineering
Yinji Xinmi Waterpark	WWI	Kaifeng Henan China	2014. 12	Water Treatment SD
Beiguo Water World	Beiguo Outlet	Shijiazhuang, China	2016	Archi/Theme Water Treatment SD, DD, CD Support
Imperial Palace Pool Villa & Hot Spa, Waterpark Resort Palawan	MA Architect	Palawan, Philippine	2016	Archi/Theme SD
Paluabara Sulawesi Waterpark	WWI	Indonesia	2016	Water Treatment SD, DD
Vananava Waterpark	WWI	Thailand	2017	Water Treatment SD, DD
Booyoung Songdo Waterpark	Aum & Lee Architects	Songdo, Kyungkido, South Korea	2017	Archi/Theme Water Treatment SD, DD, CD
Boombara Waterpark	WWI	Paluabara, Indonesia	2017	SD Revision, DD
Hon Thom Aquatopia Waterpark	Glory Top Inc Limited (Sun Group)	Hon Thom, Viet Nam	2018	Archi/Theme Water Treatment SD, DD, CD
Aqean Bay Waterpark	Newscapes Haven (San Miguel)	Panay, Philippine	2018	Archi/Theme Water Treatment SD, DD, CD Support

## Design Experience

Project	Contract	Location	Contract Year	Remarks
Winta Splash	WWI	Shanghai, China	2018	Archi/Theme Water Treatment SD, DD
Dhaka Waterpark	WWI	Dhaka, Bangladesh	2019	Water Treatment SD
Summerland Waterpark	Hung Loc Phat Thiet Investment	Phan Thiet, Viet Nam	2019	Archi/Theme Water Treatment SD, DD
Hilton Hotel Doha	WWI	Doha, Qatar	2020	Water Treatment SD
Legoland Korea	Hyundai Construction	Chuncheon, South Korea	2020	Water Treatment SD, DD, 3D
Sport Complex Olympic in Russia	WWI	Russia	2020	Archi/Theme Water Treatment SD
Turkey Aquatic Complex	Soli Construction and Engineering trade Limited Company	Turkey	2022	Archi/Theme Water Treatment SD
Summerland Waterpark (Phase 2)	Hung Loc Phat Thiet Investment	Phan Thiet, Viet Nam	2022	Archi/Theme Concept, SD
Ha Long Wave Lagoon	Syrena Viet Nam Joint Stock Company (BIM Group)	Ha Long City, Viet Nam	2022	Archi+Engineering Water Treatment SD, DD

# Waterpark Master Plan

## FACILITY LEGEND

- |                                                                         |                                                                 |
|-------------------------------------------------------------------------|-----------------------------------------------------------------|
| 1. TICKETING PLAZA                                                      | 23. SPA                                                         |
| 2. POND                                                                 | 24. KID'S POOL                                                  |
| 3. ENTRY PLAZA                                                          | 25. LIFEGUARD CIRCULATION                                       |
| 4. TICKET BOOTH                                                         | 26. VIEWING DECK                                                |
| 5. TICKET MACHINE                                                       | 27. STAGE                                                       |
| 6. SOUVENIR SHOP, STROLLER, TOILET                                      | 28. UNDER PATH                                                  |
| 7. PICNIC ZONE (FOOD LOCKER)                                            | 29. SEASONAL LOCKER & SHOWER(Lower),<br>WATER TREATMENT (Upper) |
| 8. TURNSTILE (ENTRY GATE)                                               | 30. LINEN, STORGE                                               |
| 9. F&B DECK, KITCHEN (Upper)<br>ADMINISTRATION OFFICE(Lower)            | 31. F&B(Lower), DECK(Upper)                                     |
| 10. LOCKER, SHOWER, FAMILY LOCKER                                       | 32. FLOW HOUSE ZONE                                             |
| 11. RENTAL, SHOP, TOILET                                                | 33. TOILET                                                      |
| 12. ELEVATOR & STAIRCASE                                                | 34. WATER TREATMENT ROOM                                        |
| 13. F&B                                                                 | 35. MECHANICAL, ELECTRICAL                                      |
| 14. INFINITY POOL, CABANA, SPA ZONE                                     | 36. VIP PARKING LOT                                             |
| 15. BRIDGE                                                              | 37. CONTROL ROOM                                                |
| 16. VIEWING DECK/ LIFEGUARD REST, NURSING<br>ROOM(UPPER)/ TOILET(Lower) | 38. STAFF ZONE                                                  |
| 17. KIOSK(Upper)/ RENTAL, SHOP, CHARGE (Lower)                          | 39. SERVICE TRUCK LOADING DECK                                  |
| 18. FIRST AID                                                           | 40. OFFICE                                                      |
| 19. SNACK                                                               | 41. REST AREA                                                   |
| 20. LIFEGUARD CONTROL (Upper)/ FIRST AID (Lower)                        | 42. CHARGE                                                      |
| 21. EXTREME RIVER EQUIPMENT ROOM                                        | 43. RENTAL                                                      |
| 22. CABANAS                                                             | 44. TUBE STO.                                                   |
|                                                                         | 45. ANTEROOM                                                    |

# SUMMERLAND WATERPARK

Viet Nam 2020



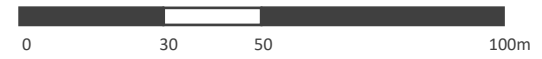
Design Service



## ATTRACTION LEGEND

- A. AQUA PLAY (AP 1050 B)
- B. MULTILANE (3lane), TUBE (1,2Person), FREEFALL, SUPER BOWL (1~2Person)
- C. MULTI LANE KID'S, AQUA SPHERE KID'S, RAIN TREE
- D. PLAY POOL (Basketball, Lily Pad, Climbing)
- E. DUAL WAVE POOL (10mX25m + 13mX33m)
- F. EXTREME RIVER (5m X 300m)
- G. BOOMERANGO & ABYSS (3 persons)
- H. FLOW RIDER DOUBLE

Upper Level





# SUMMERLAND WATERPARK

Viet Nam 2020



## FACILITY LEGEND

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|                                                                         | 45. ANTEROOM                                                    |

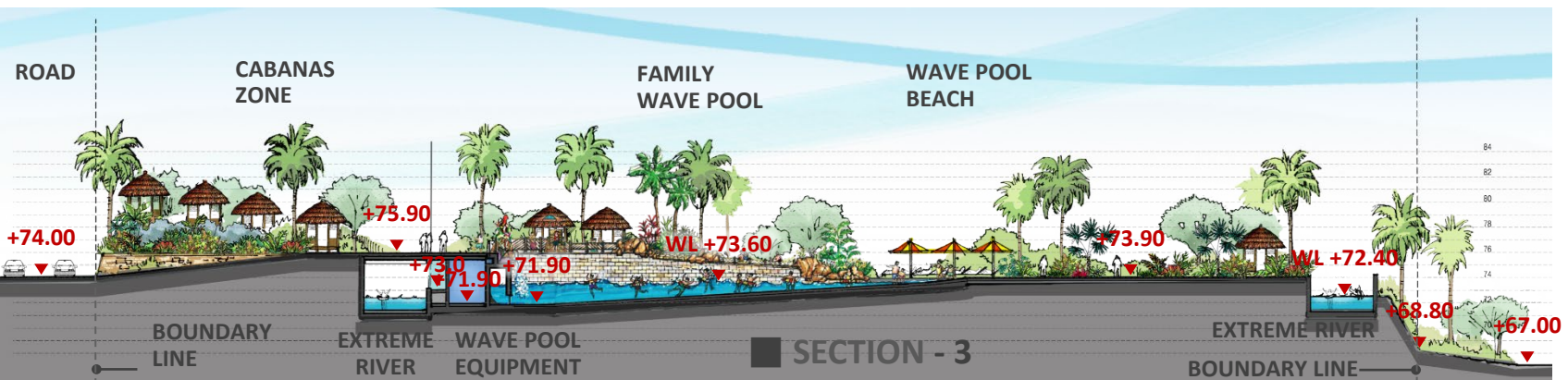
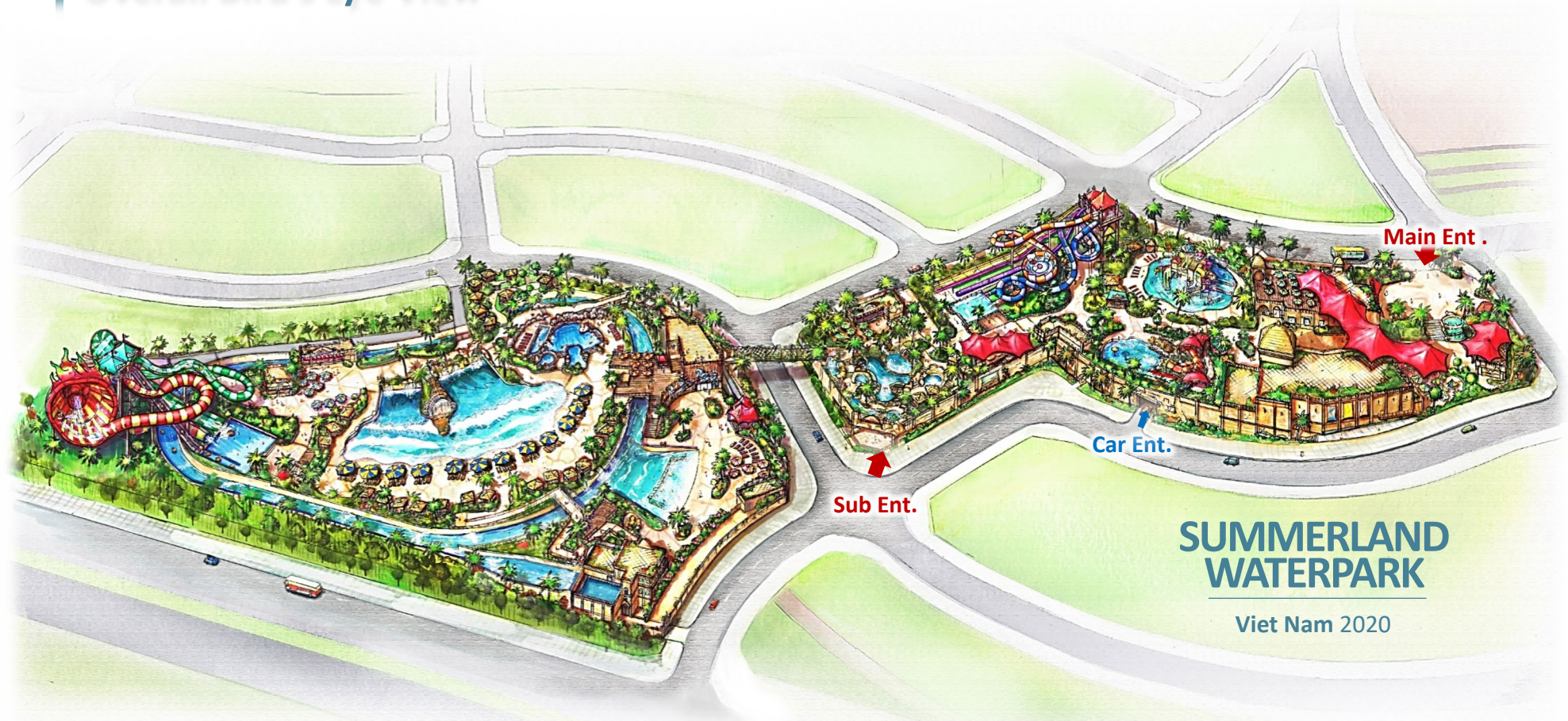


## ATTRACTION LEGEND

- A. AQUA PLAY (AP 1050 B)
- B. MULTILANE (3lane) , TUBE (1,2Person), FREEFALL, SUPER BOWL (1~2Person)
- C. MULTI LANE KID'S, AQUA SPHERE KID'S, RAIN TREE
- D. PLAY POOL (Basketball, Lily Pad, Climbing)
- E. DUAL WAVE POOL (10mX25m + 13mX33m)
- F. EXTREME RIVER (5m X 300m)
- G. BOOMERANGO & ABYSS (3 persons)
- H. FLOW RIDER DOUBLE



# Overall Bird's Eye View



# Perspective Sketches



# Waterpark Master Plan/ Overall Bird's Eye View

## BEIGUO WATER WORLD

China 2016



## AQEAN BAY

Philippines 2018



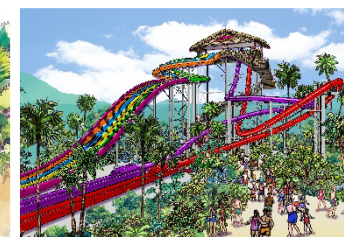
# BEIGUO WATER WORLD

CHINA  
MEDITERRANEAN VILLAGE THEME



# AQEAN BAY

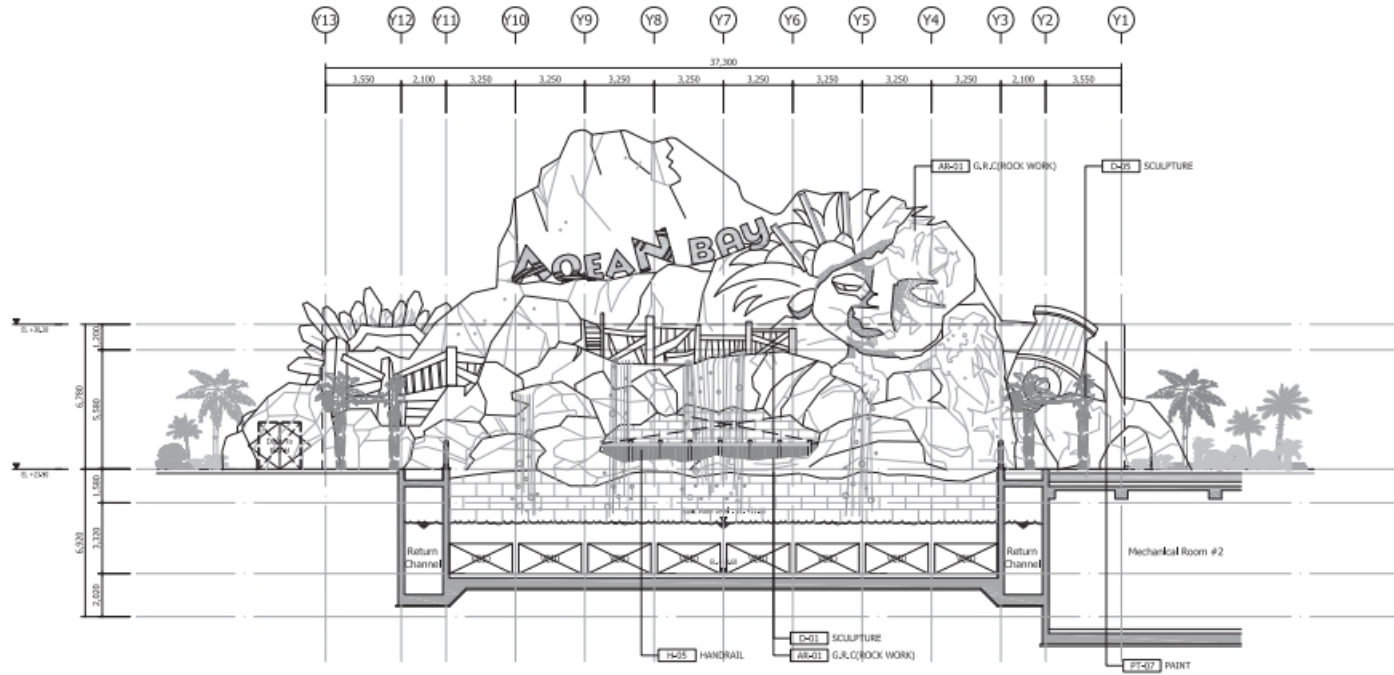
PHILIPPINES  
ATI-ATIHAN FESTIVAL / NATURAL THEME



# Theme Drawing – Surf Wave Pool

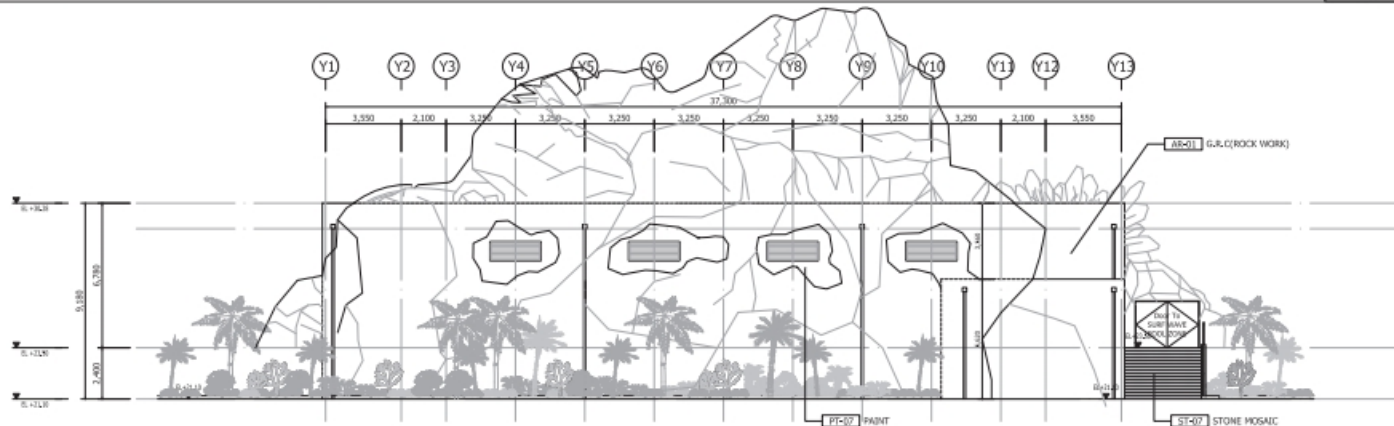
## AQEAN BAY

Philippines  
2018



1) WAVE EQUIPMENT ROOM\_ELEVATION-1

SCALE  
A1:1/1000 A2:1/2000

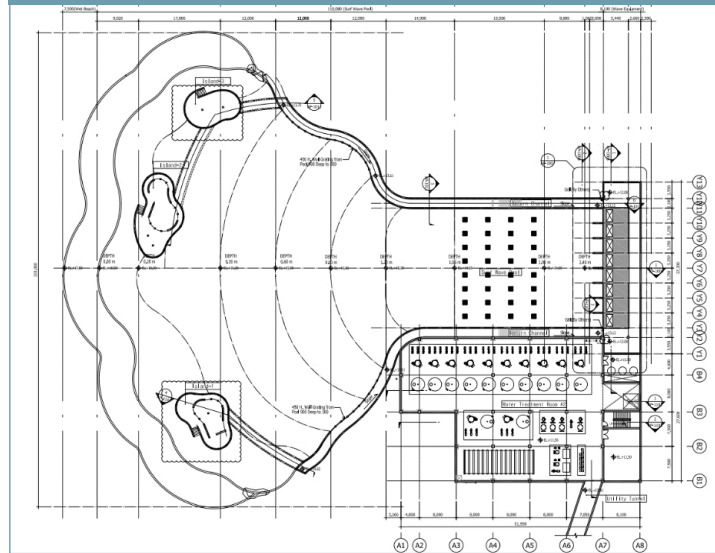


2) WAVE EQUIPMENT ROOM\_ELEVATION-2

SCALE  
A1:1/1000 A2:1/2000

# Pool & Ride Architecture Drawing-2

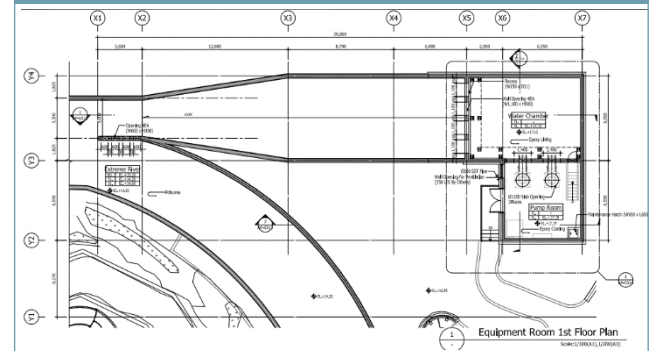
Surf Wave Pool Underground Plan



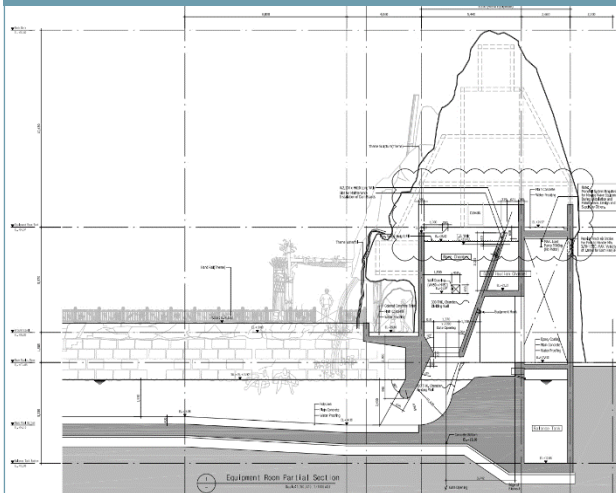
# AQEAN BAY

Philippines  
2018

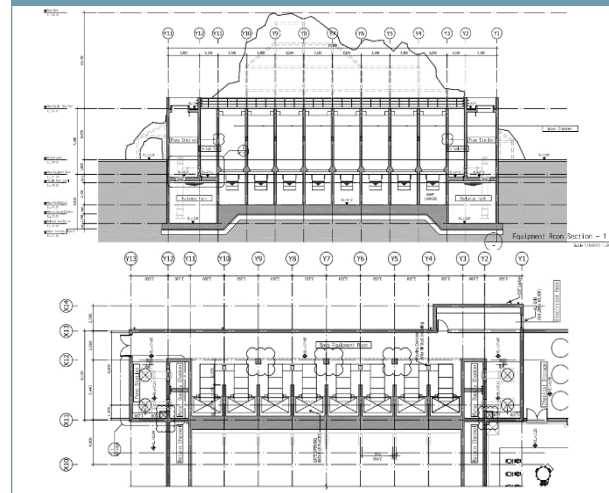
Extreme River Equipment Room Floor Plan



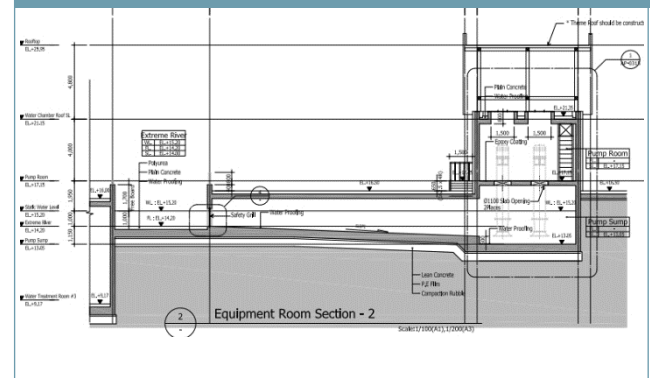
Equipment Room Partial Section



Equipment Room Section & Level Plan



Extreme River Equipment Room Section

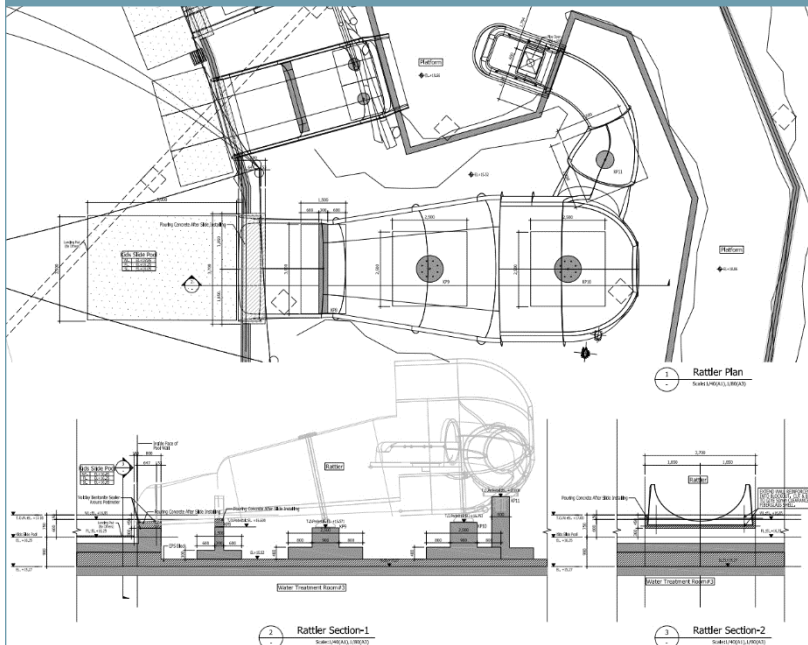


# Pool & Ride Architecture Drawing-1

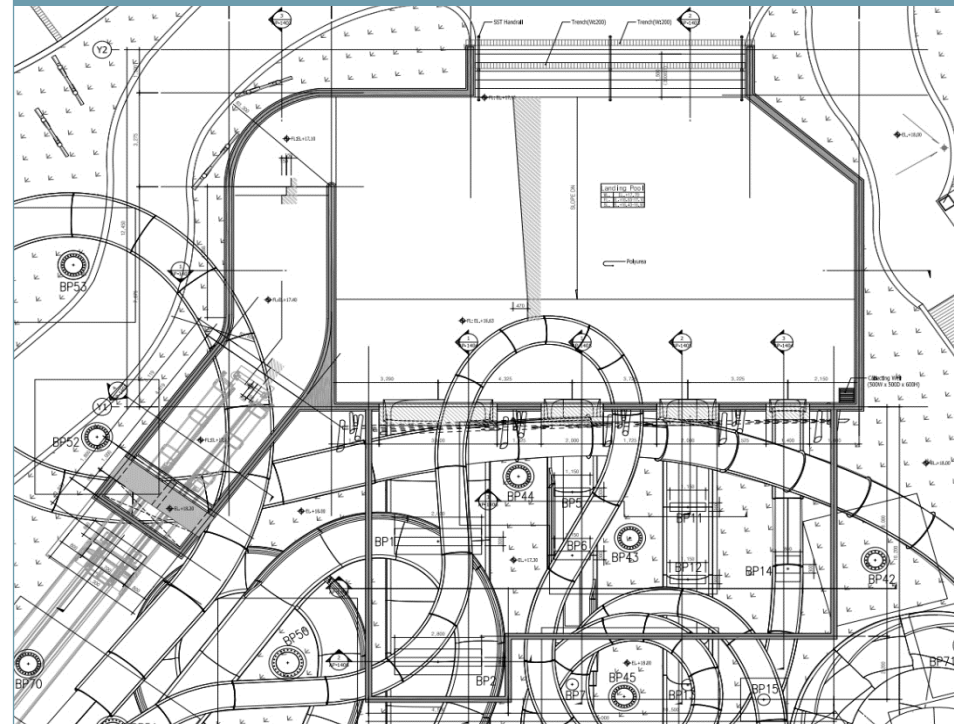
## AQEAN BAY

Philippines  
2018

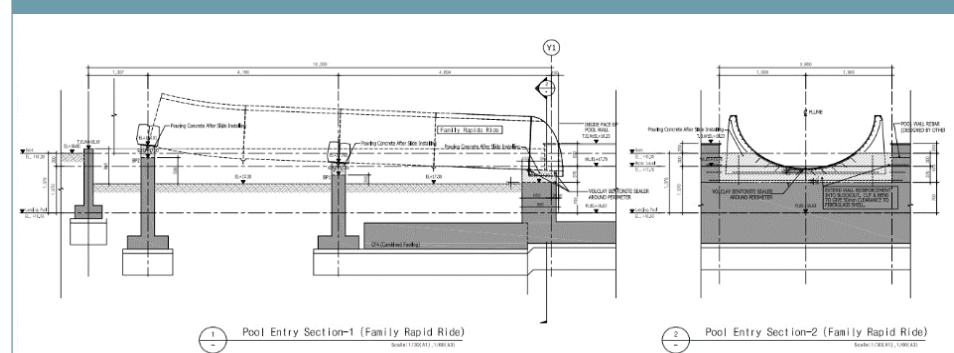
Kid's Slide Rattler Plan / Section



Rattler Complex Landing Pool Plan



Rattler Complex Landing Pool Entry Section (Family Rapid Ride)





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# BEIGUO WATER WORLD

China  
(2016)

Indoor : 23,922m<sup>2</sup>  
Outdoor : 61,422m<sup>2</sup>

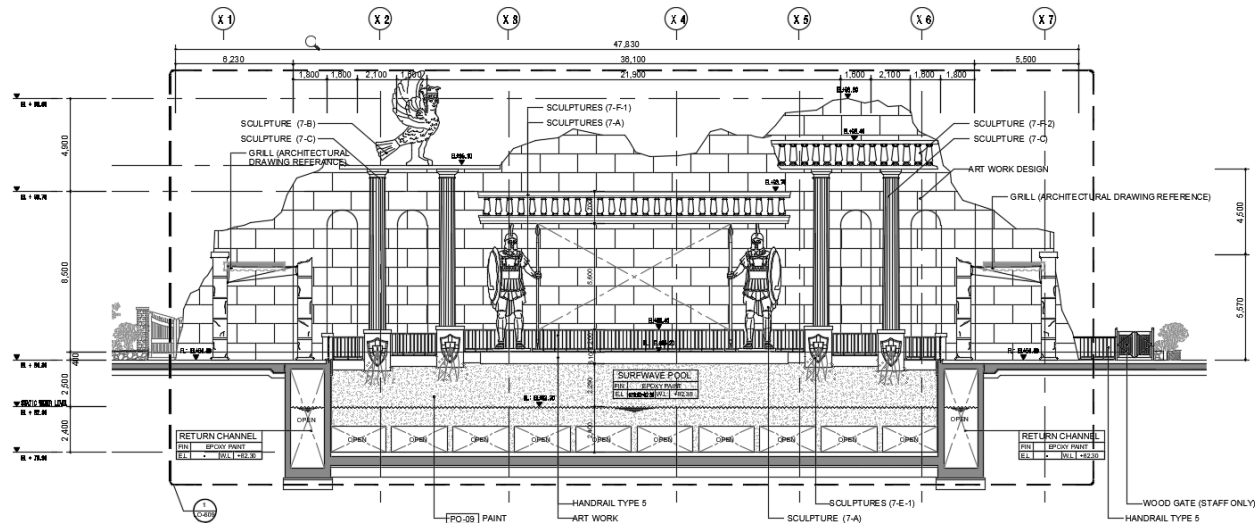
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Design Service

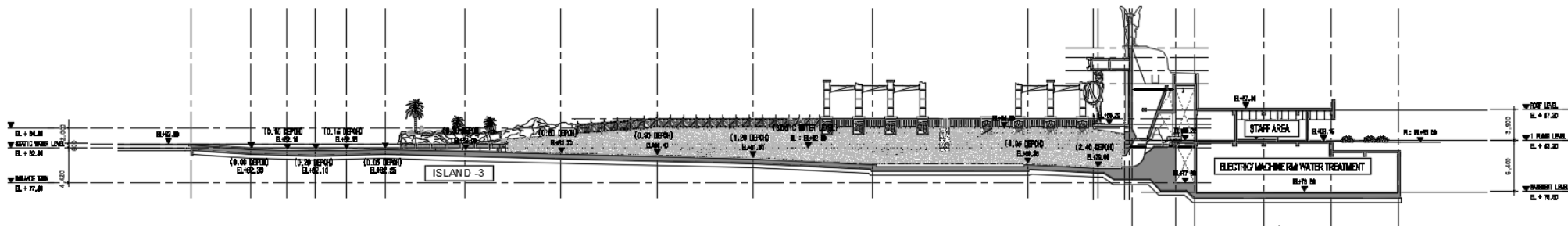
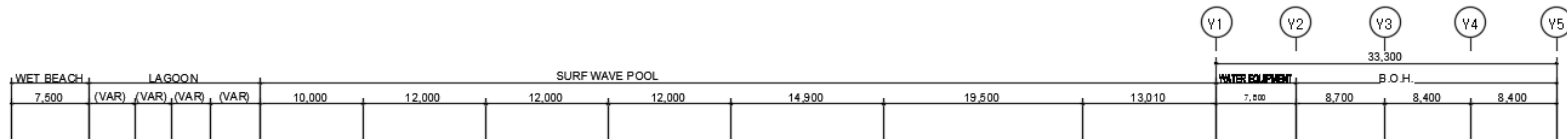


# Theme Drawing – Surf Wave Pool



## BEIGUO WATER WORLD

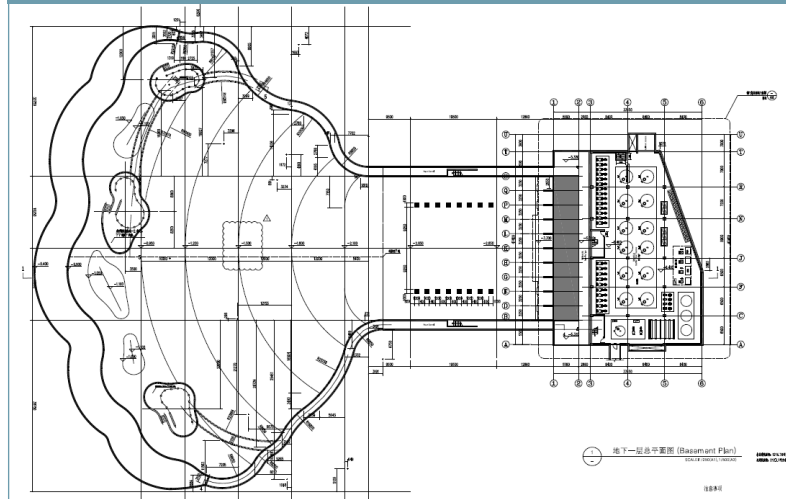
China  
2016



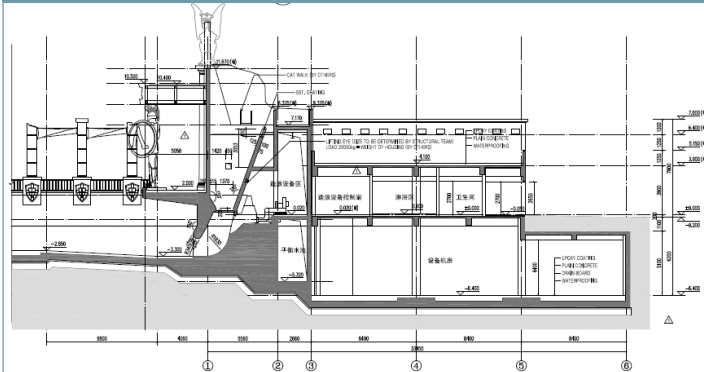
ARCHITECTURAL DRAWING REFERENCE

# Pool & Ride Architecture Drawing-2

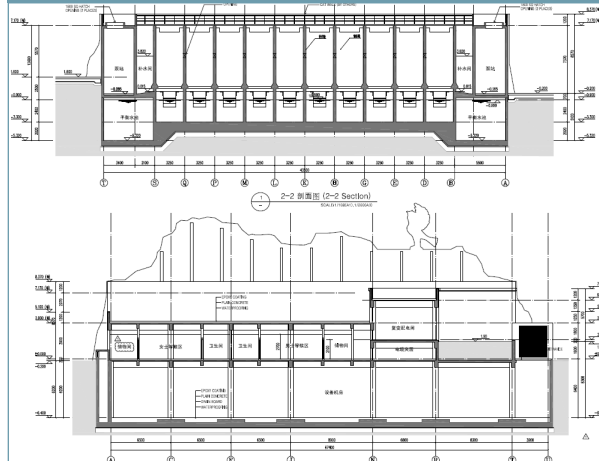
Surf Wave Pool Underground Plan



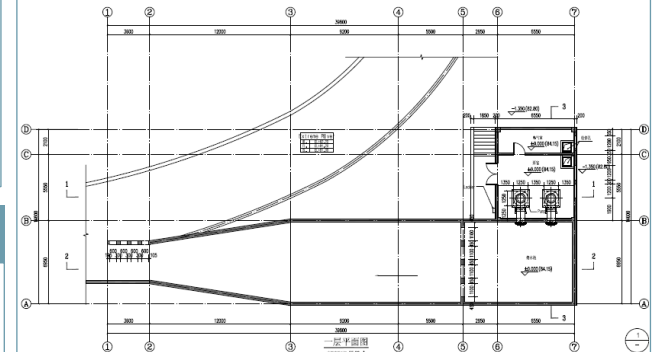
Equipment Room Partial Section



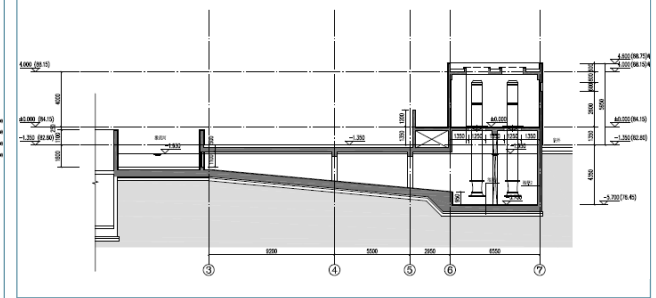
Equipment Room Section & Level Plan



Extreme River Equipment Room Floor Plan



Extreme River Equipment Room Section

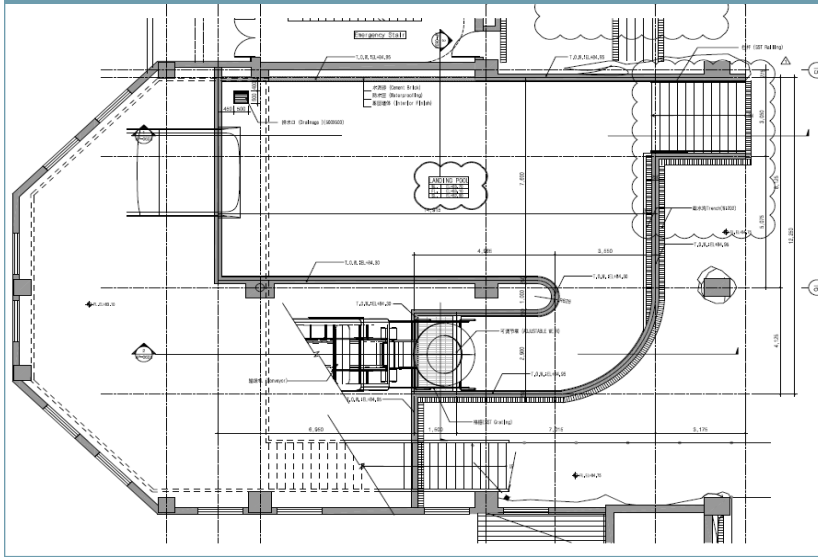


## BEIGUO WATER WORLD

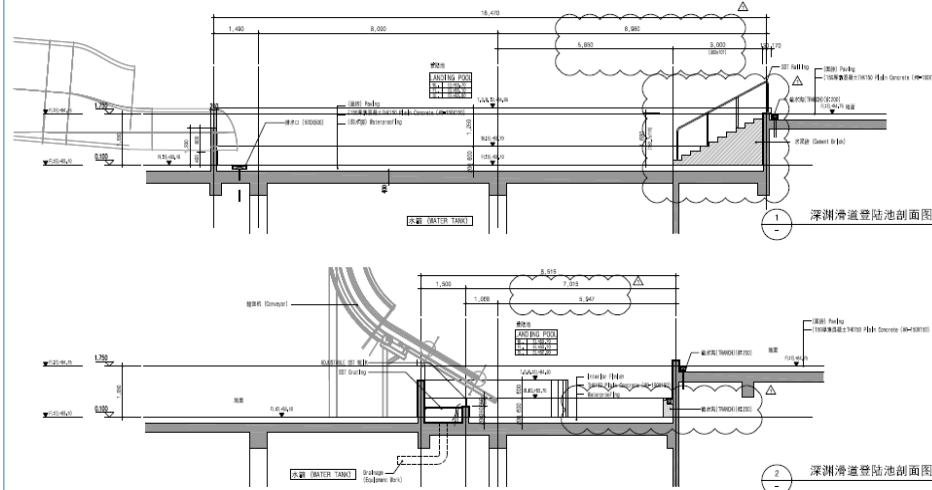
China  
2016

# Pool & Ride Architecture Drawing-1

Abyss Slide Landing Pool Plan



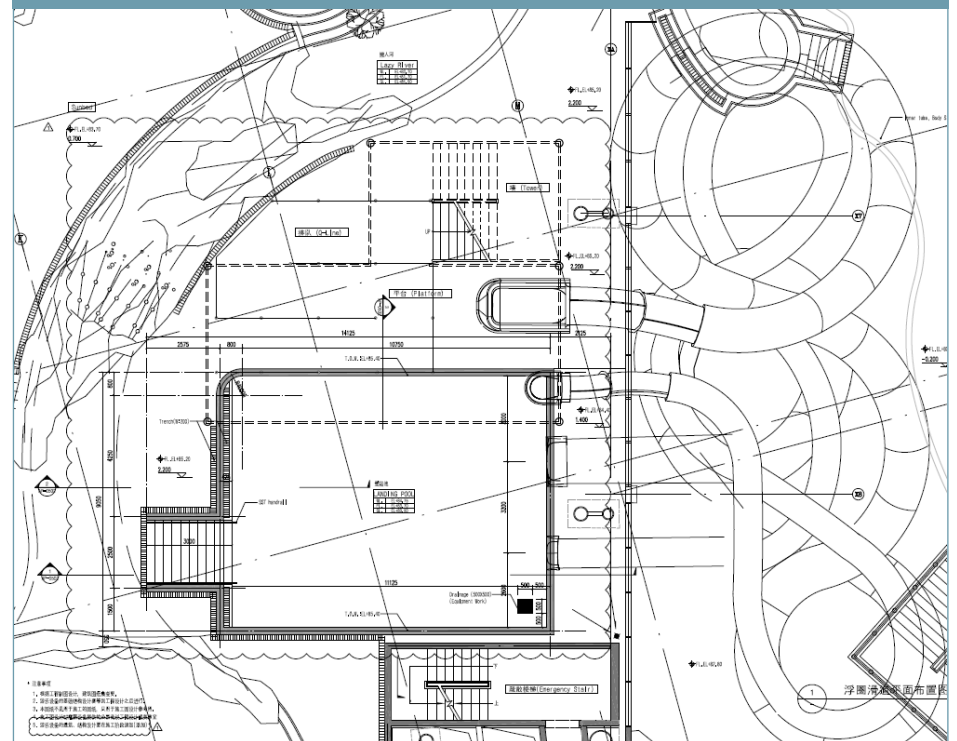
Abyss Slide Landing Pool Entry Section



## BEIGUO WATER WORLD

China  
2016

Inner Tube, Body Slide Landing Pool Plan



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# LOTTE WATERPARK

Gimhae-si, Gyeongsangnam-do,  
Korea

(2014/2015)

Indoor : 23,140m<sup>2</sup>

Outdoor : 79,339m<sup>2</sup>

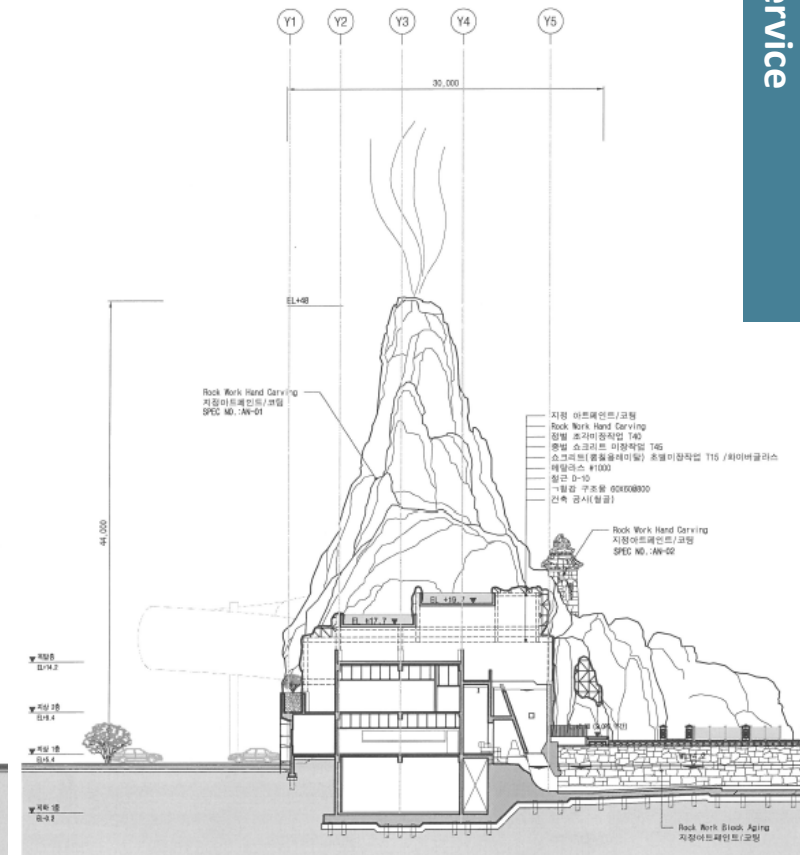
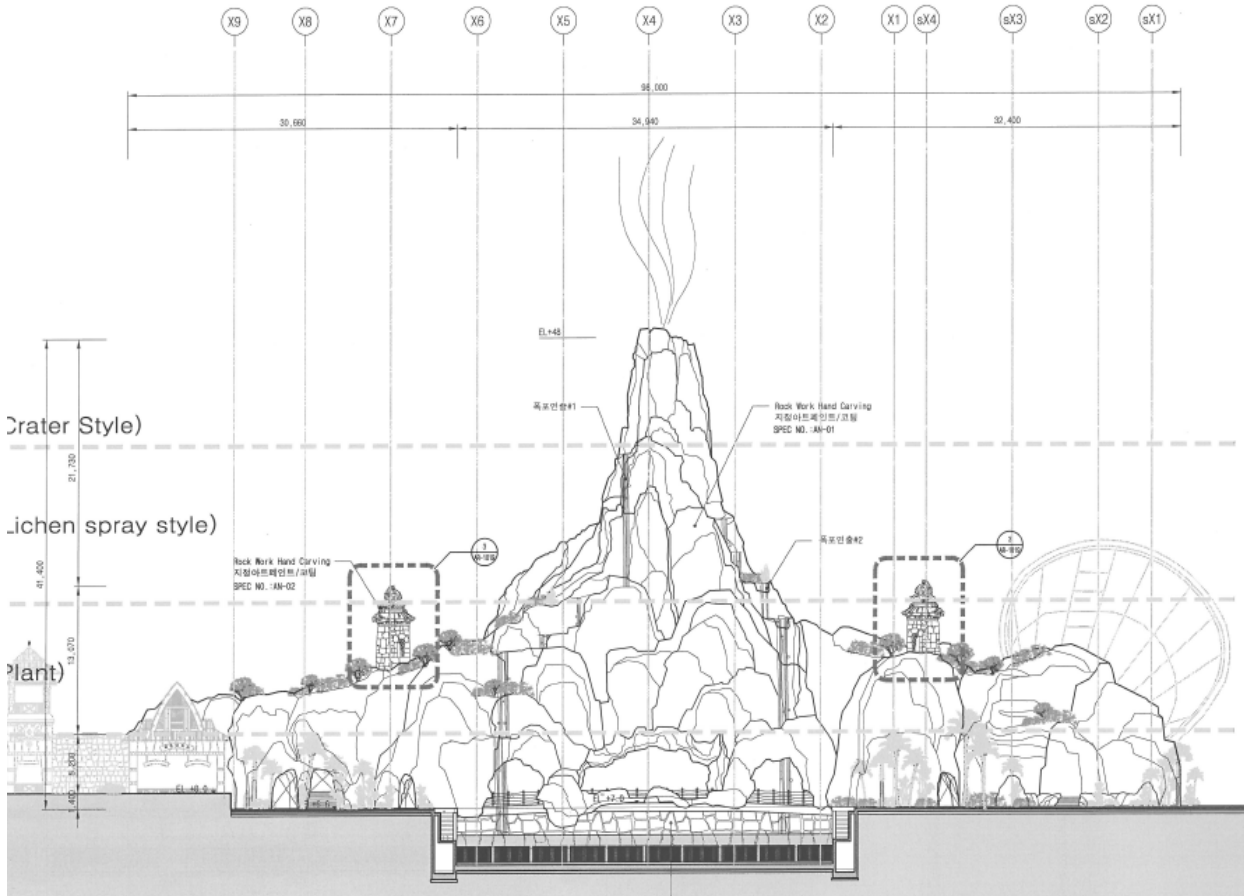
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# Theme Drawing – Surf Wave Pool

## LOTTE WATERPARK

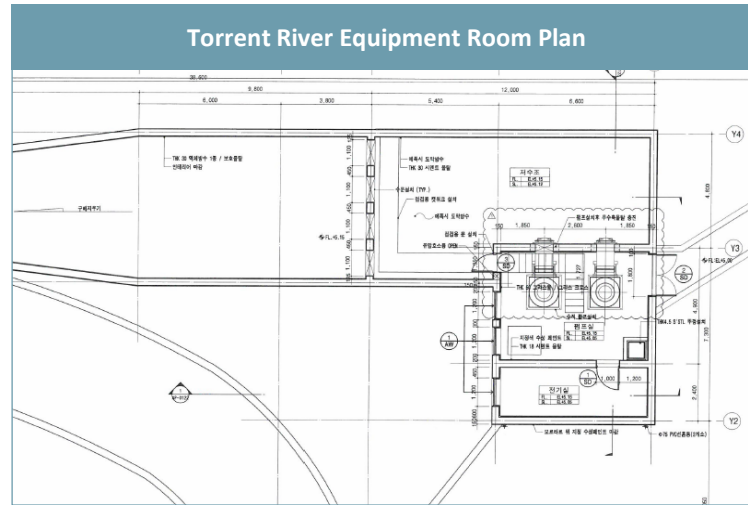
Korea  
(2014/2015)



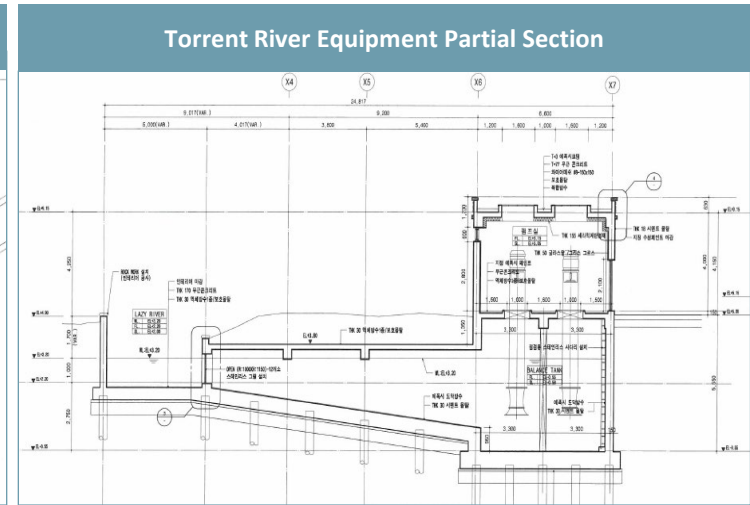
# Pool & Ride Architecture Drawing-1

**LOTTE**  
**WATERPARK**  
Korea  
(2014/2015)

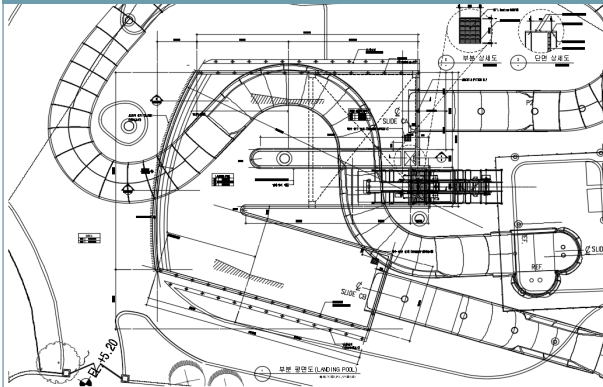
Torrent River Equipment Room Plan



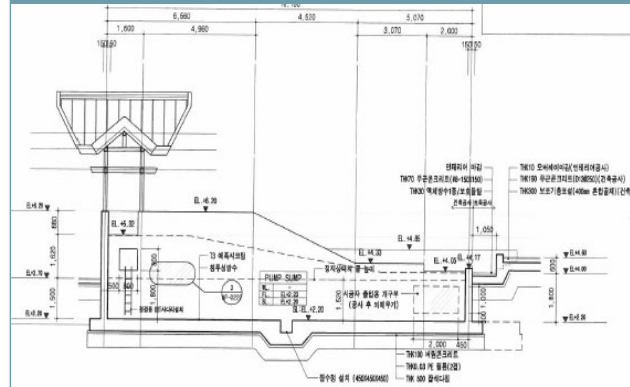
Torrent River Equipment Partial Section



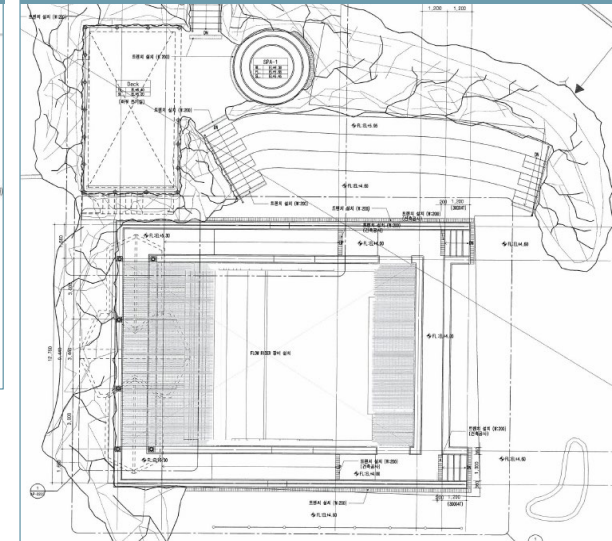
Abyss Landing Pool Floor Plan



Flowrider Partial Section



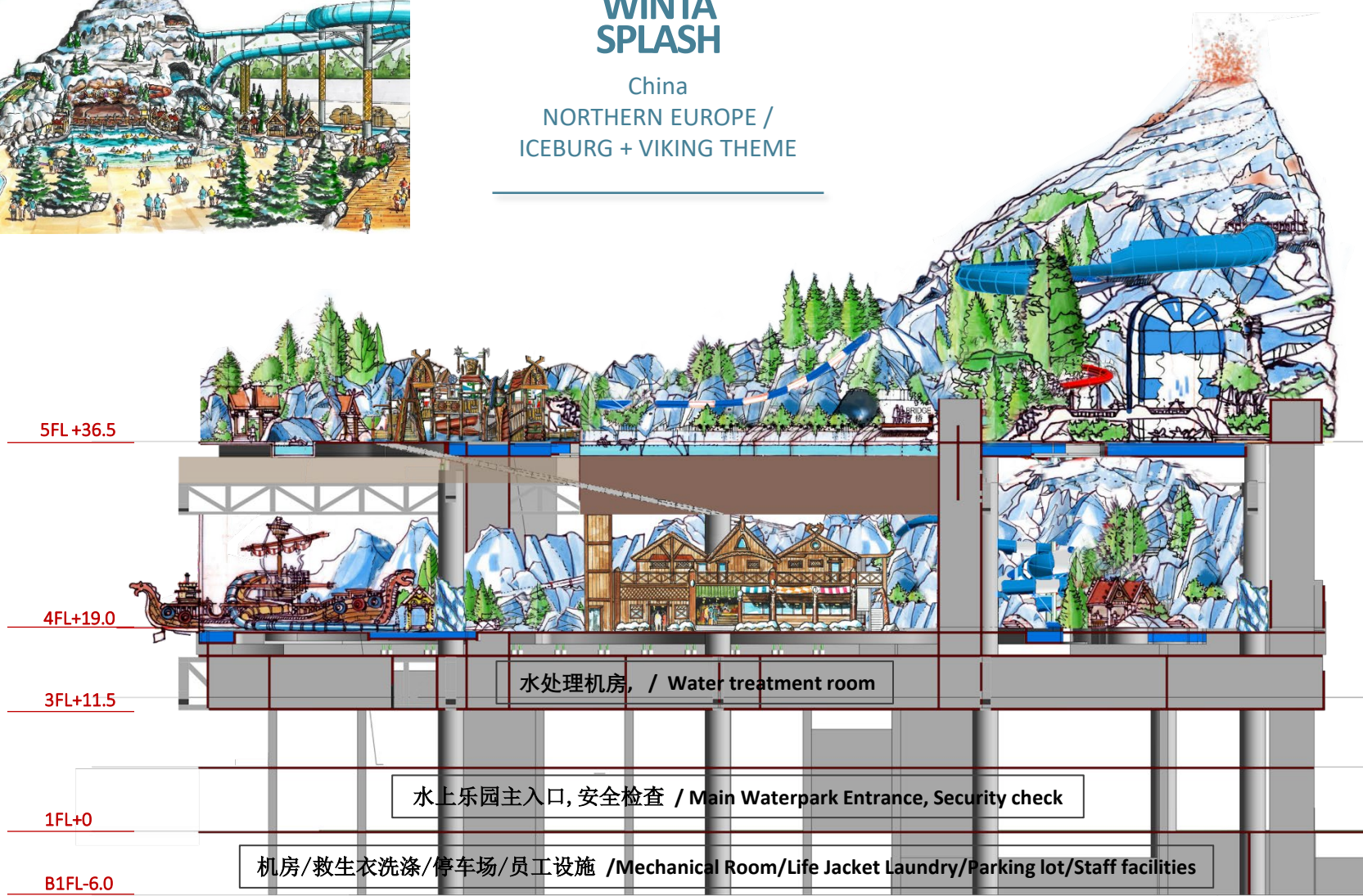
Flowrider Floor Plan





# WINTA SPLASH

China  
NORTHERN EUROPE /  
ICEBURG + VIKING THEME





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# DAEMYUNG OCEAN WORLD

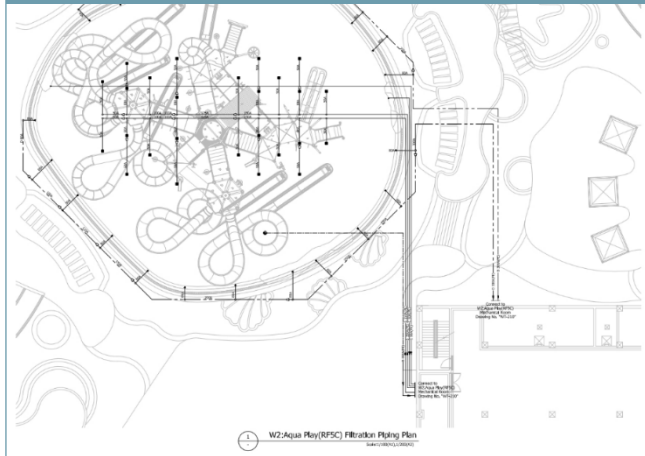
Hongcheon-gun, Gangwon-do,  
Korea  
(2005~2014)  
Indoor : 13,223m<sup>2</sup>  
Outdoor : 85,950m<sup>2</sup>

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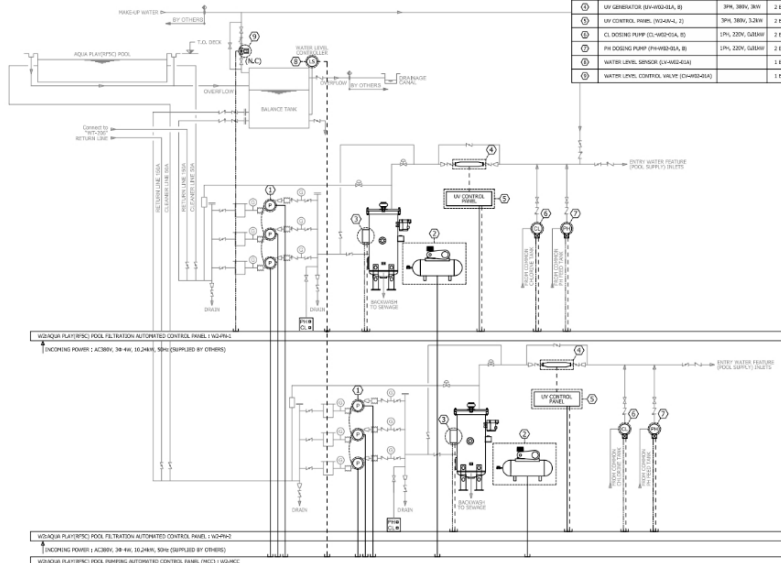
# M.E.P Design – Water Treatment Design

RF5C Filtration Piping Plan



W2:Aqua Play(RF5C) Filtration Piping Plan

RF5C Pool Filtration Automated Control Power System Diagram

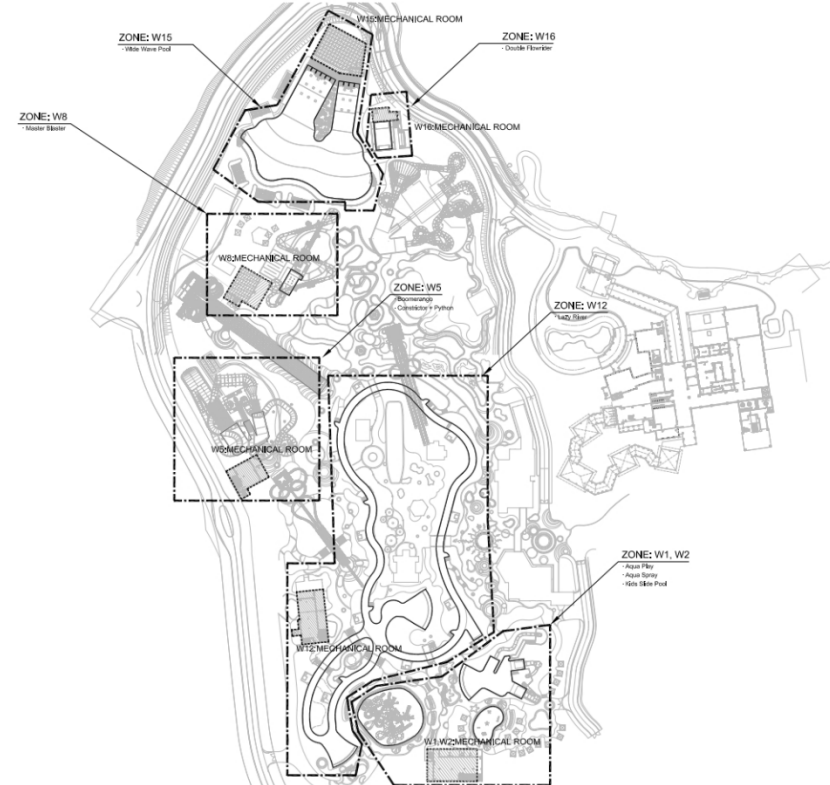


W2:Aqua Play(RF5C) Pool Filtration Automated Control Power System Diagram

# AQUATOPIA WATERPARK

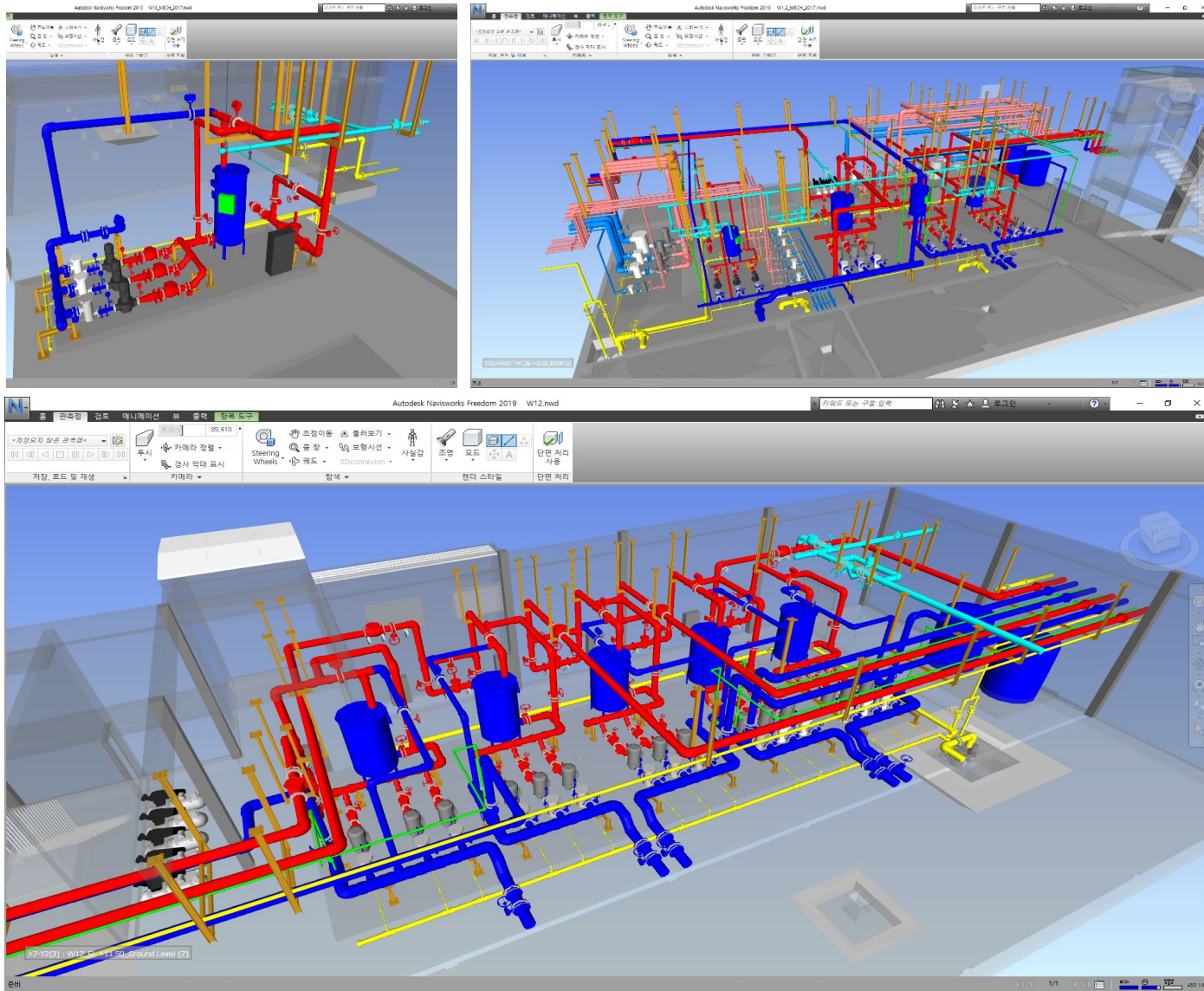
Viet Nam  
2018

Overall Site Plan



Over All Site Plan

# M.E.P Design – 3D Design of Water Treatment Room

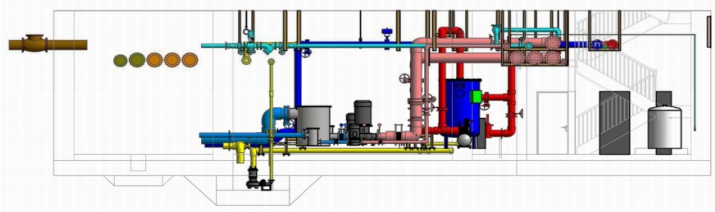


## AQUATOPIA WATERPARK

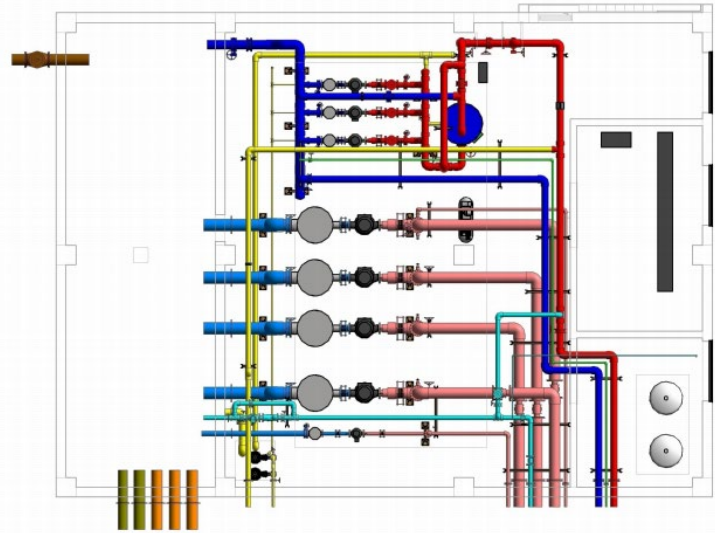
Viet Nam  
2018

# M.E.P Design – 3D Design of Water Treatment Room

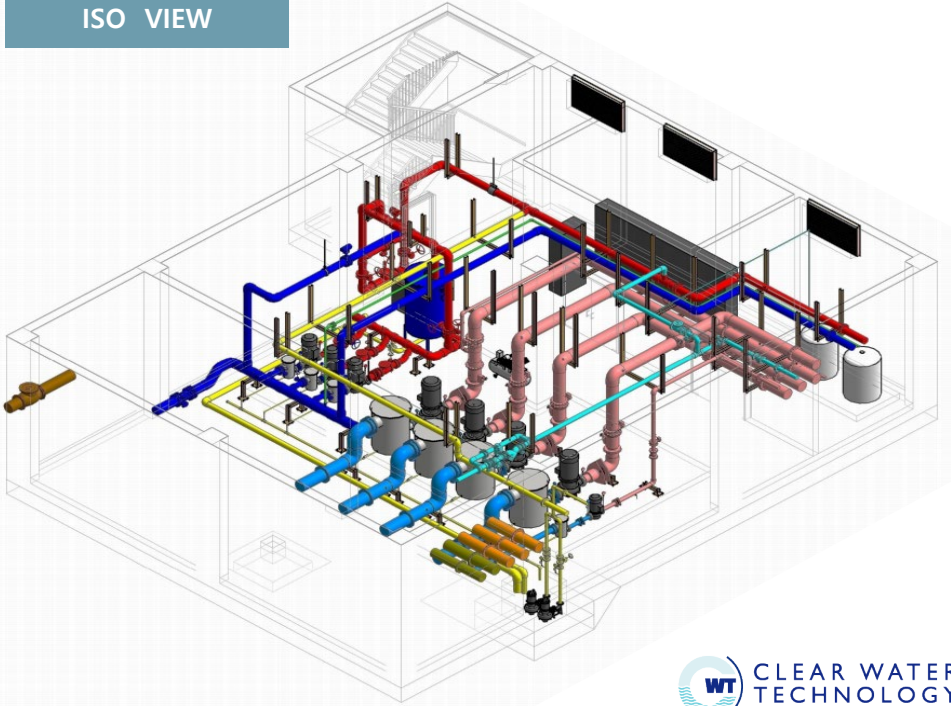
SIDE VIEW



TOP VIEW



ISO VIEW

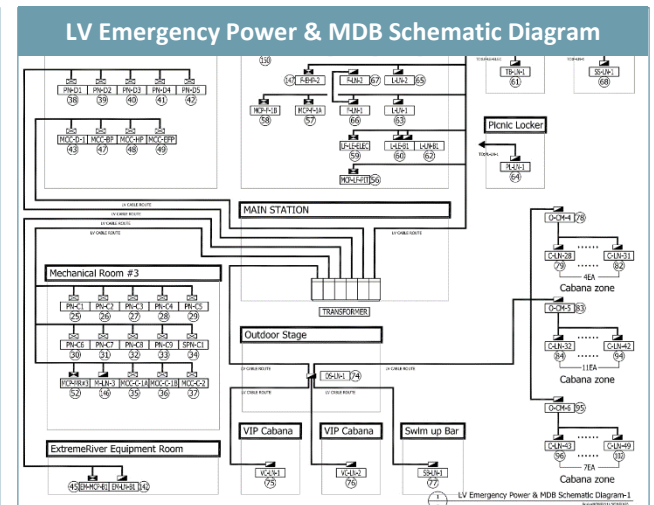
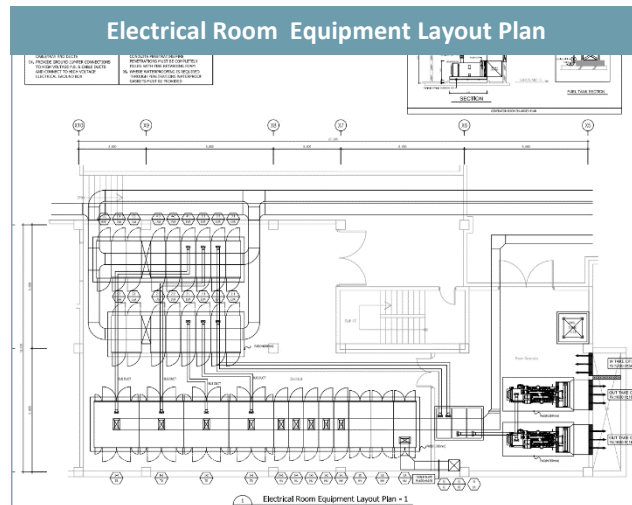
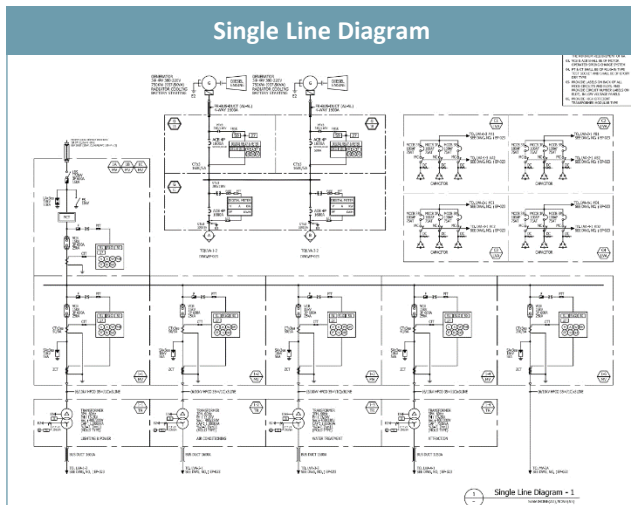
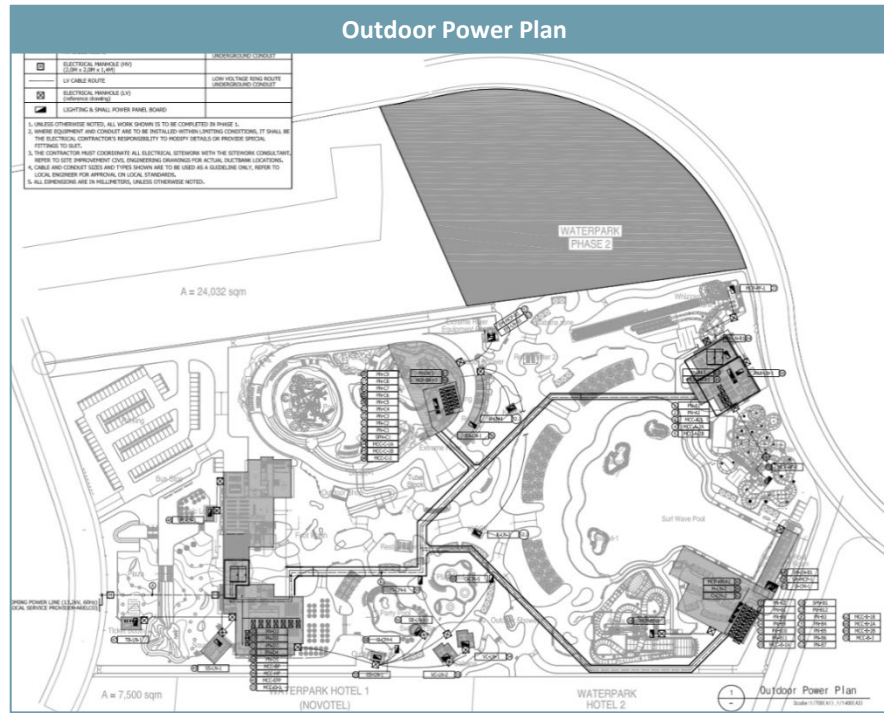




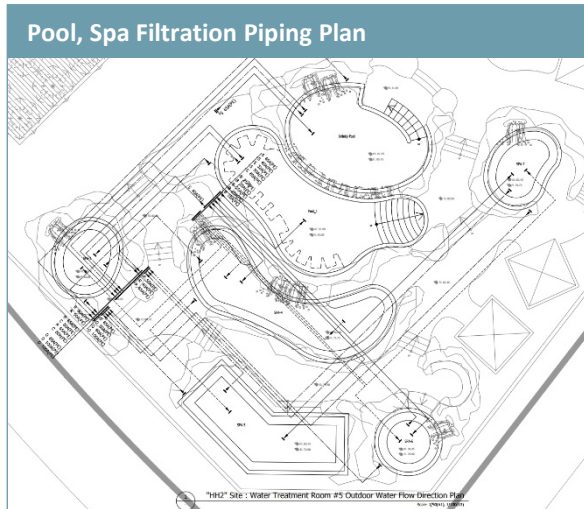
# M.E.P Design – General Electrical Design

**AQEAN BAY**

Philippines  
2018

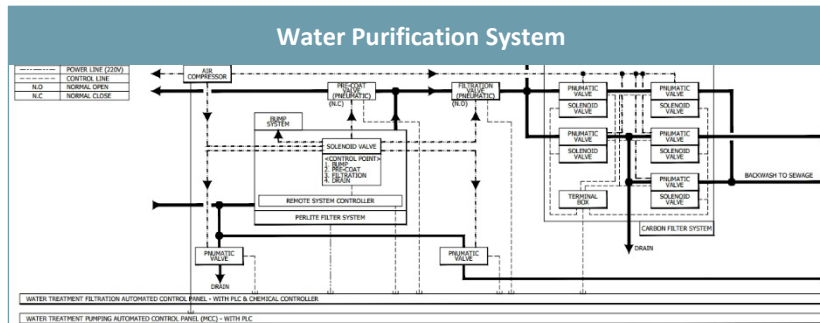
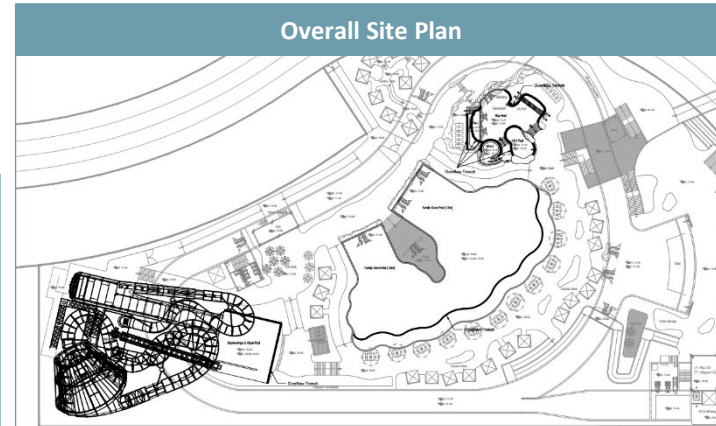


# M.E.P Design – Water Treatment Design



## SUMMERLAND WATERPARK

Viet Nam  
2018



**2. WATER PURIFICATION SYSTEM**

The main function of water purification is to lower the turbidity and remove the organic matters to obtain the water quality suitable for the water park. By selecting a filter good for the turbidity and organic matter according to on-sites conditions, the design purpose is to make an efficient water purification control system considering the economic efficiency, stability and convenience. The types of filter including Perlite Filter, Carbon Filter, Sand Filter, Mullerlayer Filter, etc. Perlite Filter & Carbon Filter is used for this project.

[ PERLITE FILTER ]

Effective improvement on filtration method and turbidity through perlite filter media, reduction backwash volume and backwash frequency, media automatic removal function (BUMP), convenient filter media supply through vacuum transfer device and efficient control through remote system controller.

1) Control & Monitoring Functions

- > Timer, Manual, OFF Mode Select
- > BUMP Mode Select, Status Check, ON, OFF
- > Pre-Coat, Filtration Valve & Drain Valve/Valve Status Check, Open, Close
- > Differential Pressure Status Check & Circulation Pump Status Check, ON, OFF
- > Maintenance Parameter Setting (Schedule, Valves, BUMP, Pre-Coat, Vacuum Transfer Device, Differential Pressure, etc)
- > Real-time Data Collection (Pump Running Time, Valve Running Time, Vacuum Transfer Device Running Time, etc)
- > Error Display (Error Occurrence Time, Restore Time, Alarm) & Reset

[ CARBON FILTER SYSTEM ]

The filtration material is filled in a closed cylindrical container, and the pool water is passed through the filtration layer to filter the foreign materials (eggs/bacteria). At this time, unnecessary taste, odor color, etc. of the swimming pool water are removed and it is composed of several layers

**PERLITE FILTER DETAIL**

**CARBON FILTER DETAIL**

**REMOTE SYSTEM CONTROLLER DETAIL**

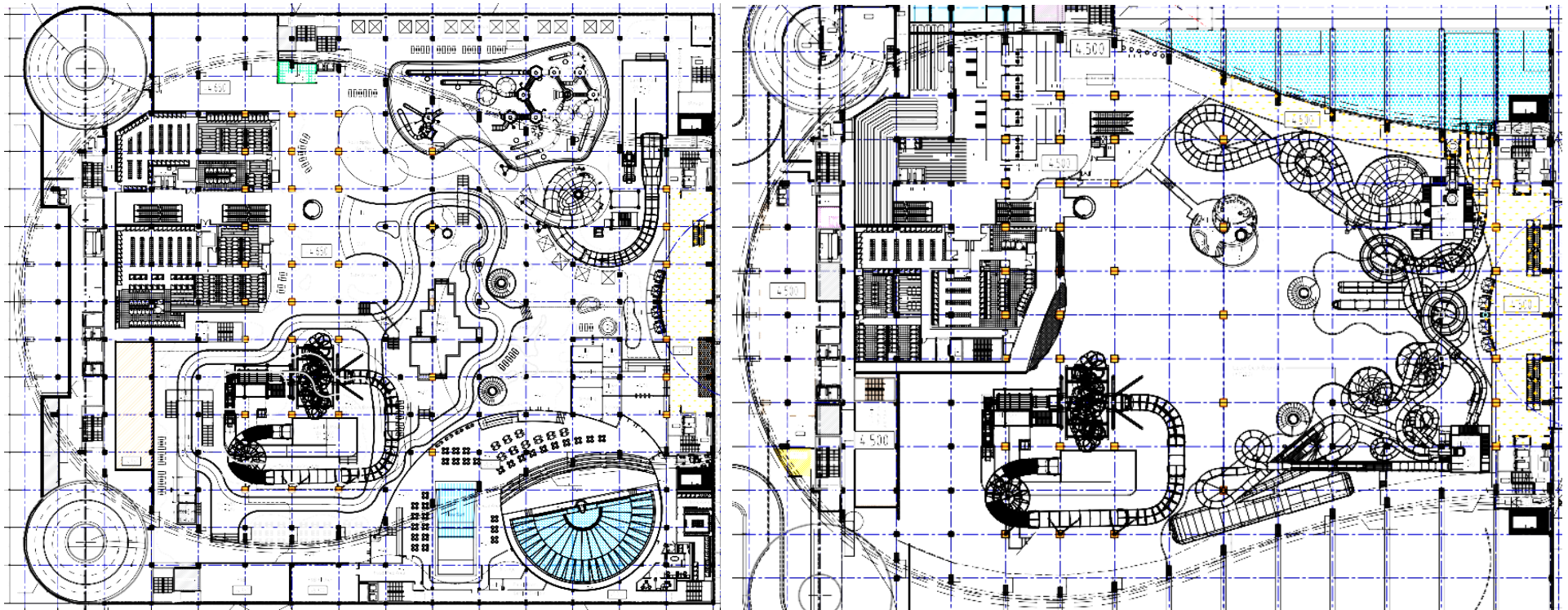
**VALVE FUNCTIONS**

Valve	Cycle Steps	Filteration	Backwash	Settle	Rinse
A) Filtration Inlet	Open	Closed	Closed	Open	
B) Backwash Inlet	Closed	Open	Closed	Closed	
C) Backwash Outlet	Closed	Open	Closed	Closed	
D) Filtration Outlet	Open	Closed	Closed	Closed	
E) Rinse Outlet	Closed	Closed	Closed	Open	

## SPORT COMPLEX OLYMPYISKIY

Russia  
2020

Overall Site Plan





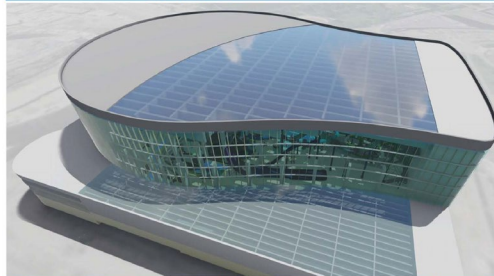
# M.E.P Design – Water Treatment Design

## SPORT COMPLEX OLYMPIYSKIY

Russia  
2020

CWT Screen for Water Treatment System

Olympiyskiy sport complex

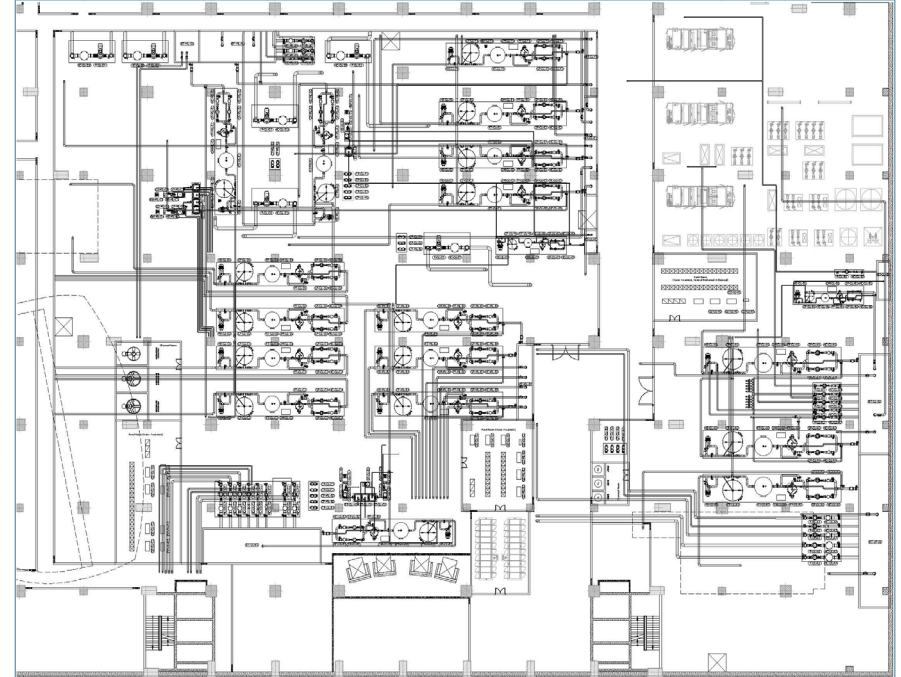


Water Treatment System      Attraction      Login

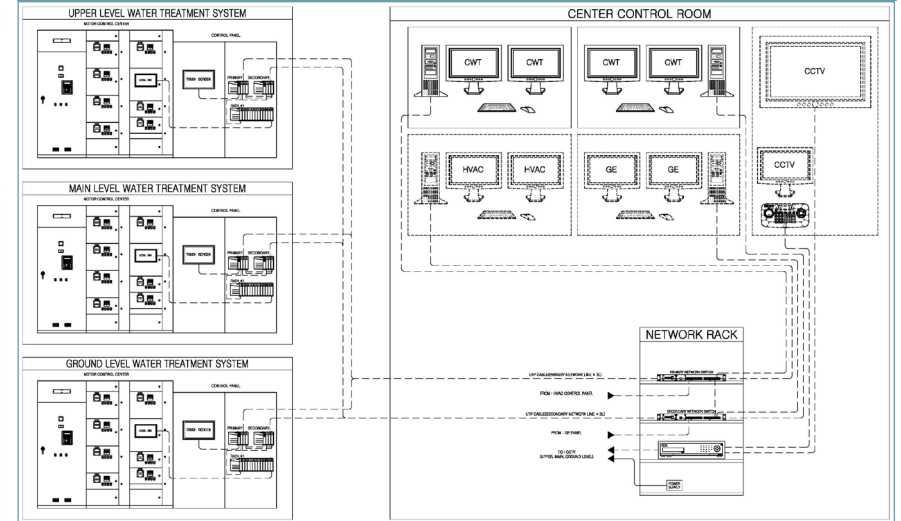
Water Treatment System			Attraction		
Ground Level	Main Level	Upper Level	Ground Level	Main Level	Upper Level
<b>Water Treatment System</b> Upper Level Flying Island Pool Flying Island Spa Orbiter Water Slide Complex Master Blaster + Boomerango Aqua Tube & Pool Sider Parallel Pursuit – Mat & Tailspin					

Water Treatment System			Attraction		
Ground Level	Main Level	Upper Level	Ground Level	Main Level	Upper Level
<b>Water Treatment System</b> Ground Level AF800TB AF200TB Water Toys Wave Oz™ Flow Surf™ Lazy River Spa in Grotto Spa-1,2 Pond					

Overall Mechanical Room Site Plan

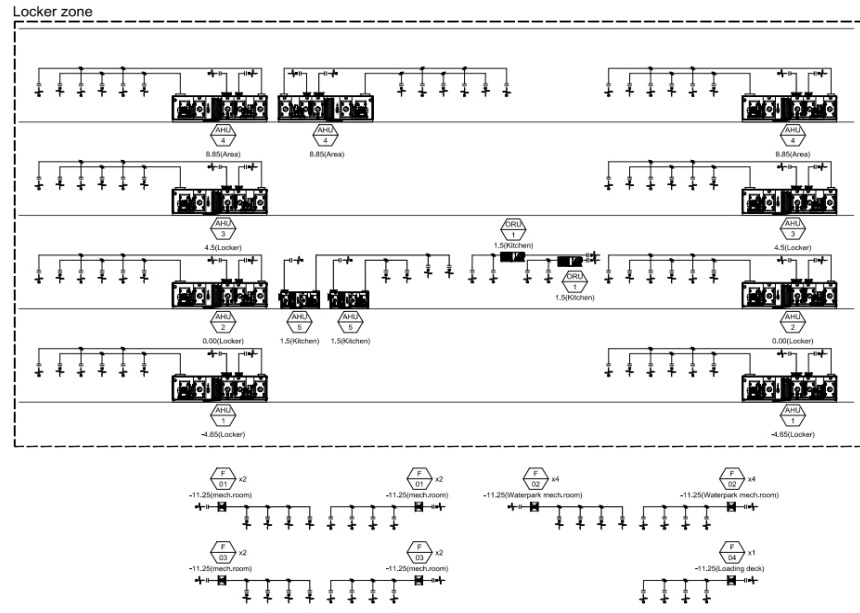


Control System Configuration for CWT

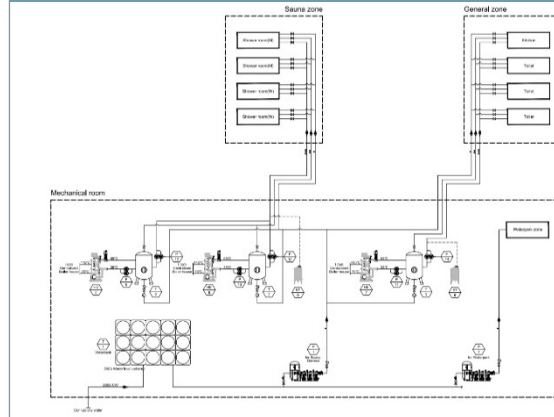


# M.E.P Design – General Mechanical Design

HVAC Duct Flow Diagram



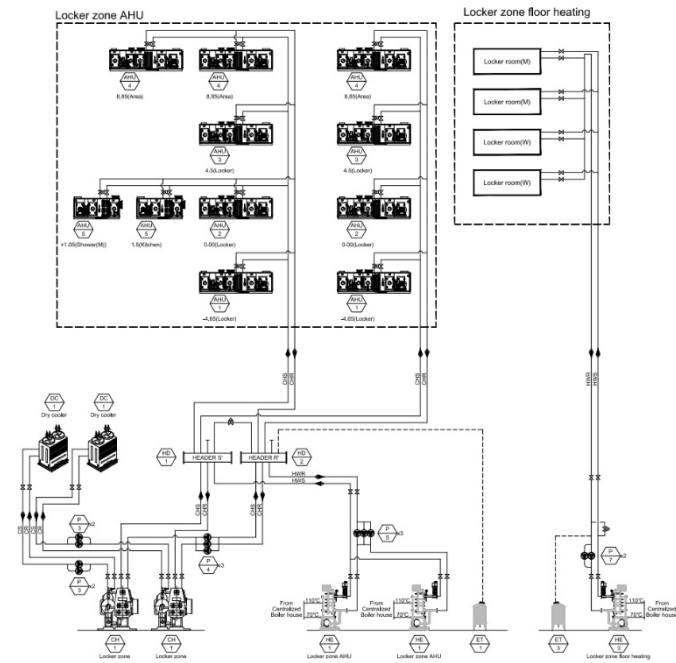
Plumbing Piping Flow Diagram



## SPORT COMPLEX OLYMPYISKIY

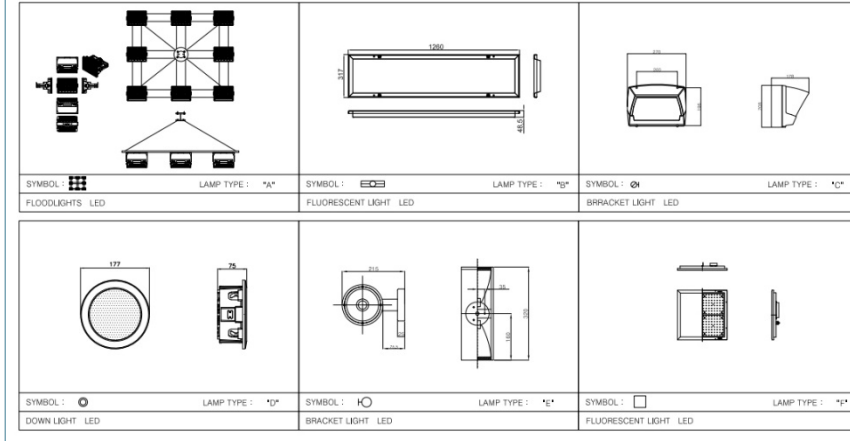
Russia  
2020

HVAC Piping Flow Diagram



# M.E.P Design – General Electrical Design

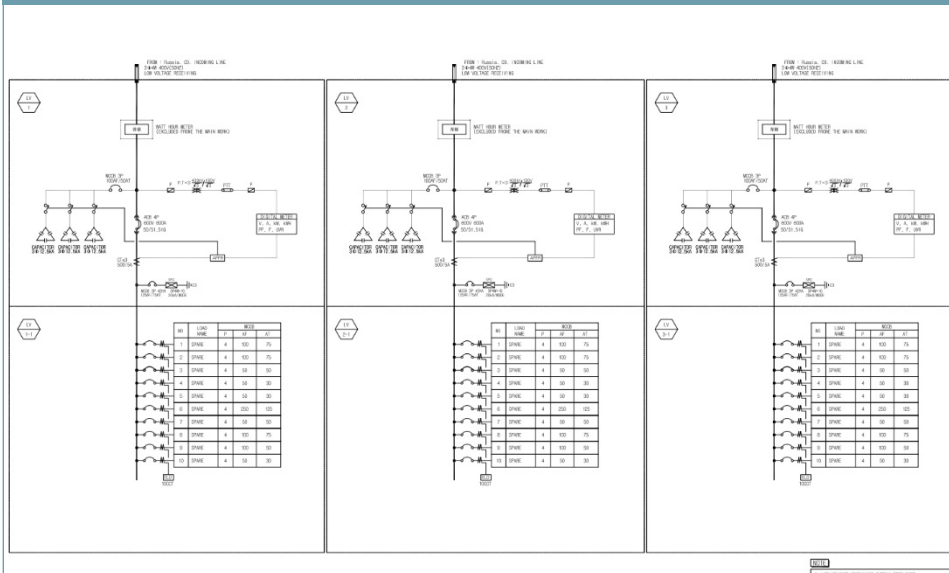
## Lighting Fixture Detail



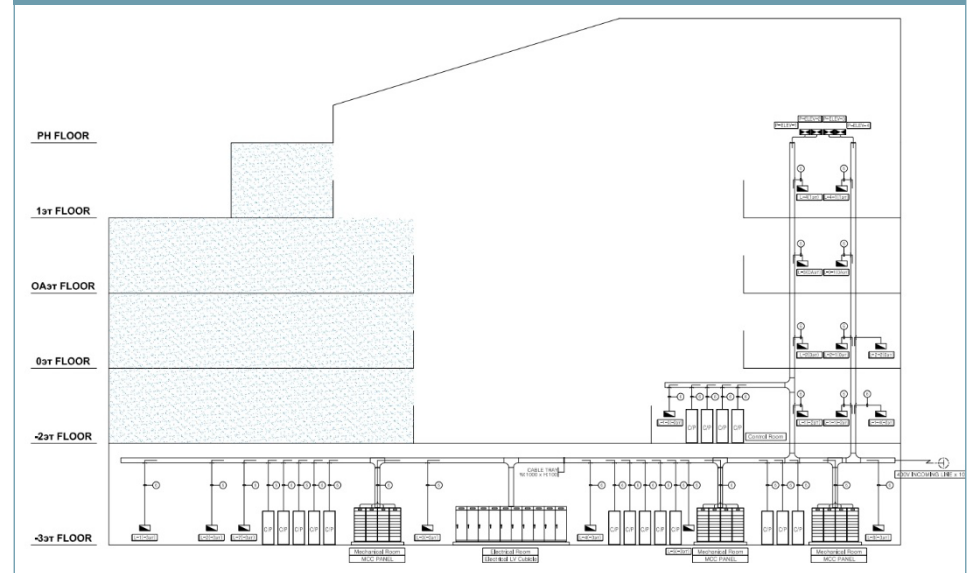
# SPORT COMPLEX OLYMPYISKIY

Russia  
2020

## Single Line Diagram



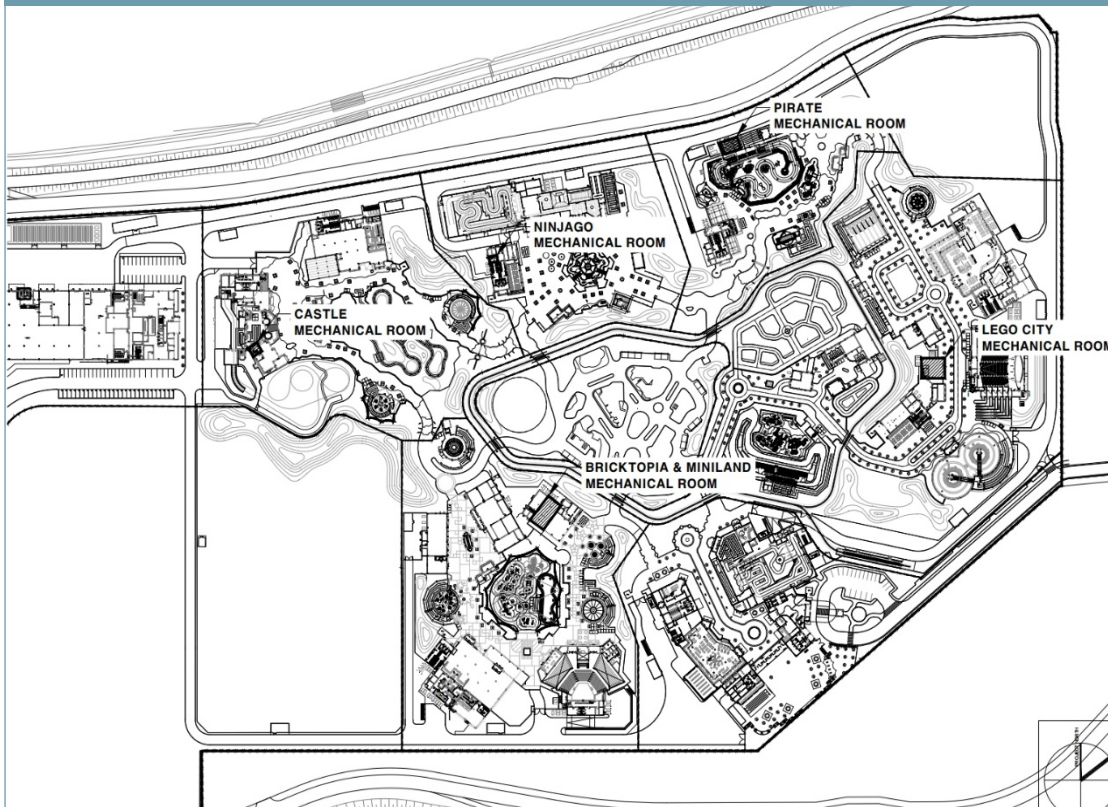
## Power Feeder Riser Diagram



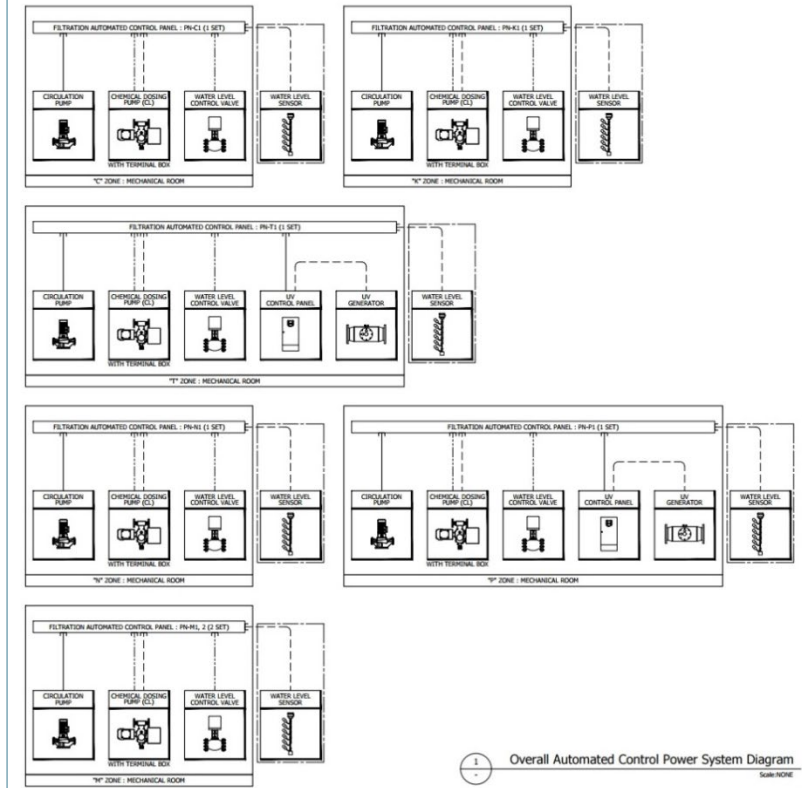
## LEGOLAND KOREA

Korea  
2020

Overall Site Plan

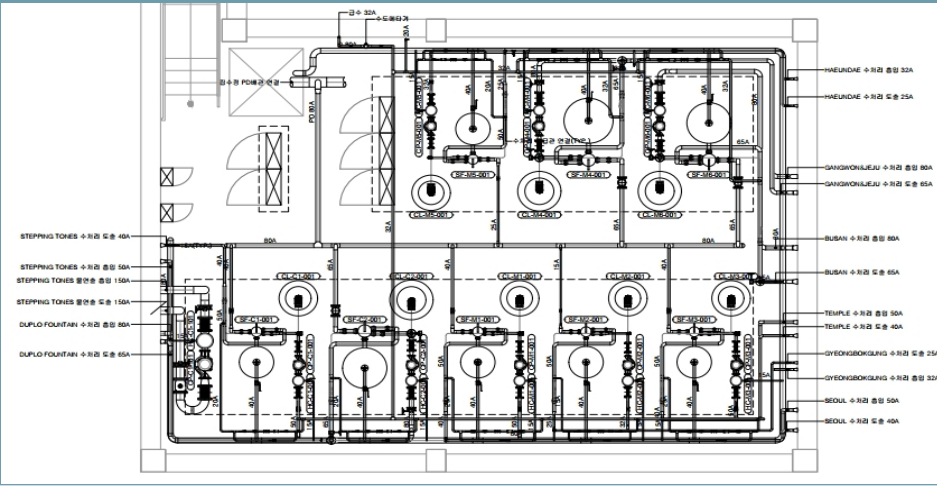


Overall Automated Control Power System Diagram



# M.E.P Design – Water Treatment Design

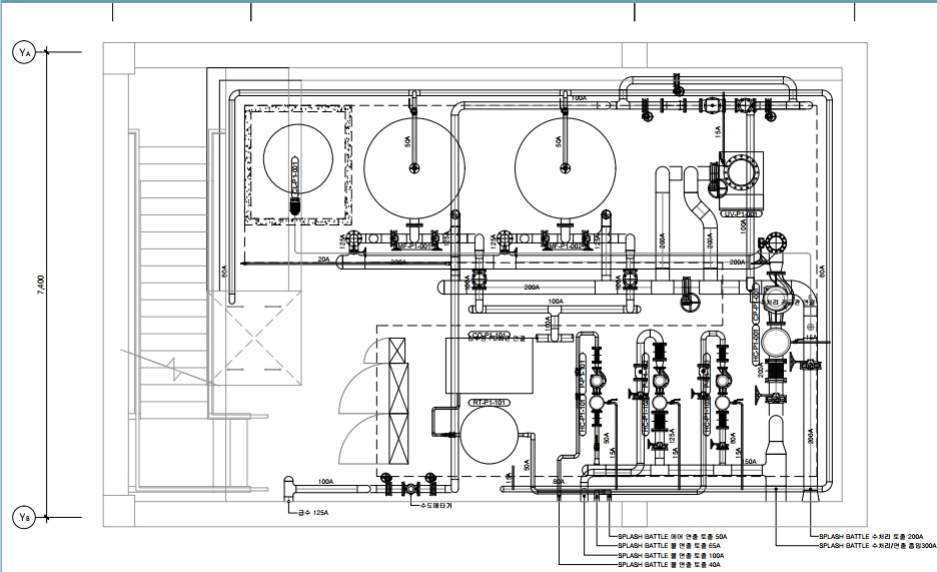
BRICKTOPIA & MINILAND Mechanical Room Piping Plan



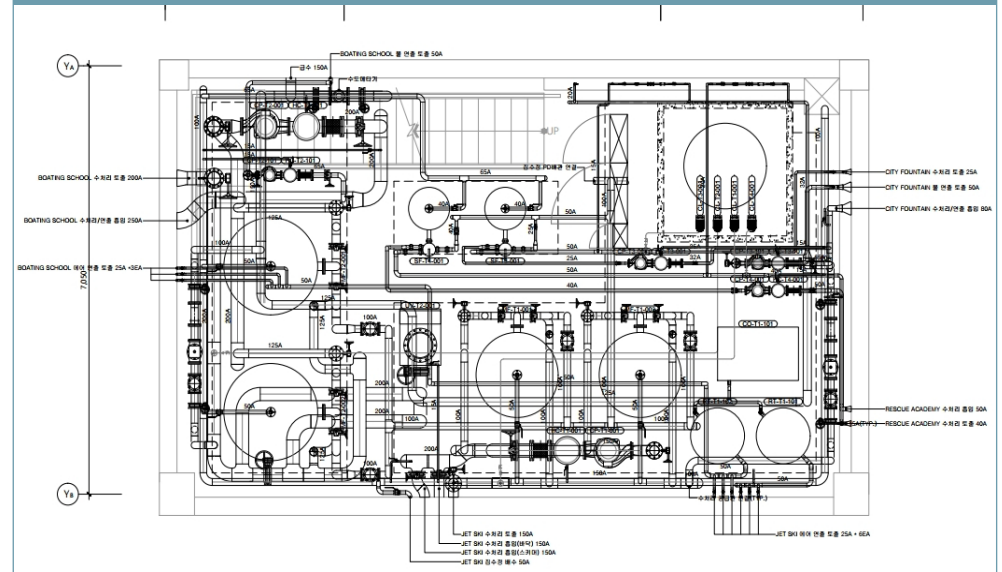
## LEGOLAND KOREA

Korea  
2020

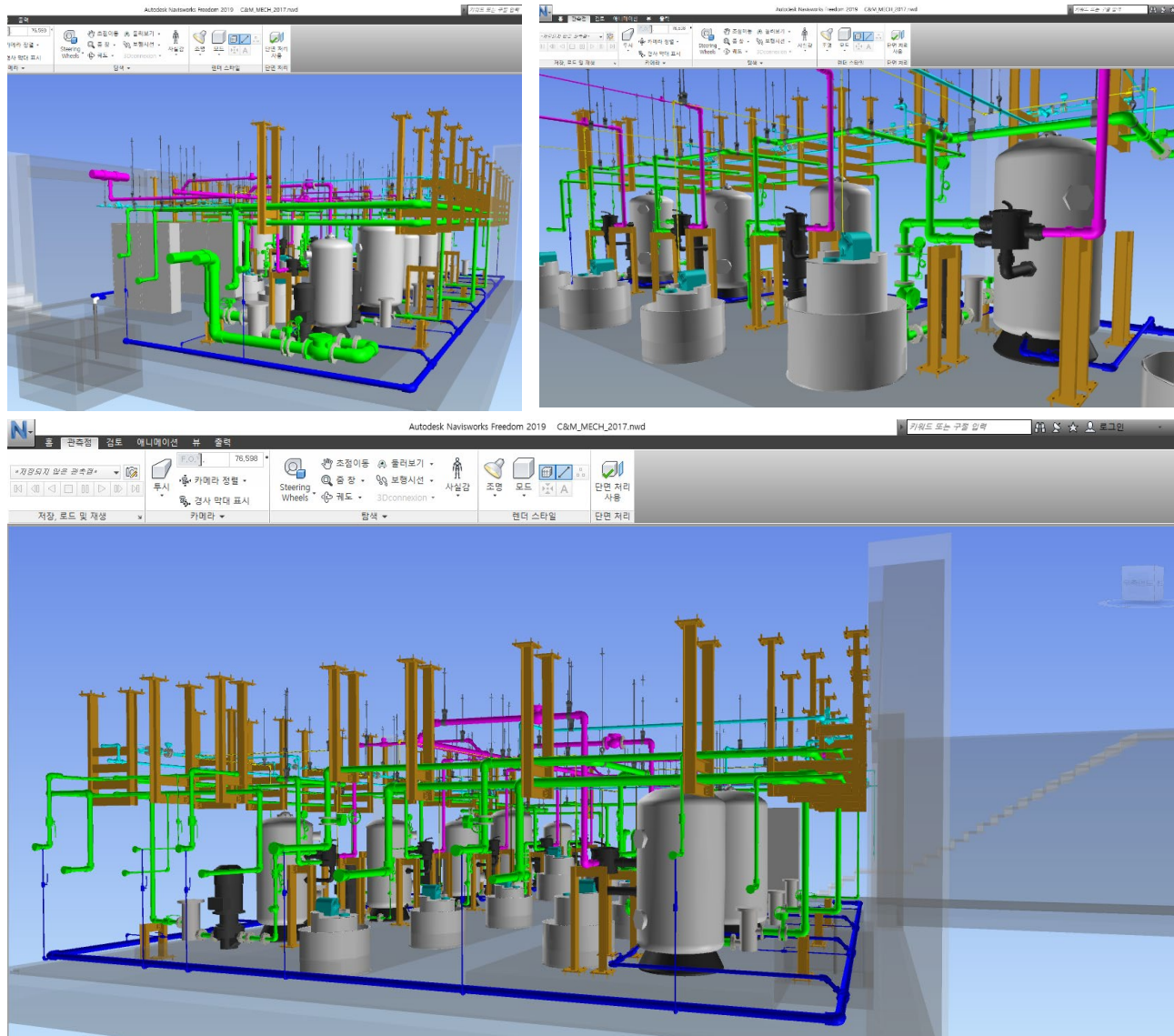
PIRATE Mechanical Room Piping Plan



LEGO CITY Mechanical Room Piping Plan



# M.E.P Design – 3D Design of Water Treatment Room



**LEGOLAND  
KOREA**

**BRICKTOPIA & MINILAND  
Mechanical Room**  
Korea  
2020

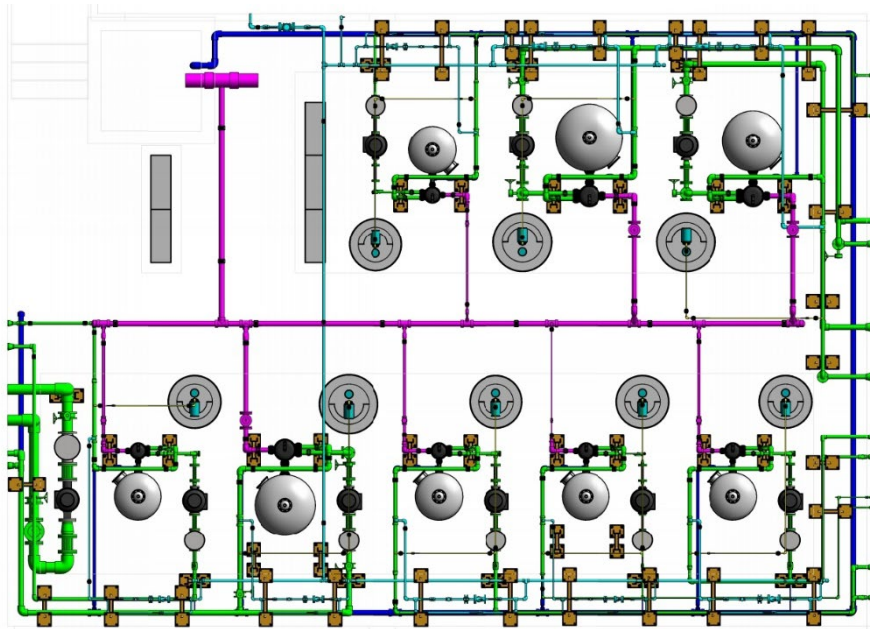
# M.E.P Design – 3D Design of Water Treatment Room

## LEGOLAND KOREA

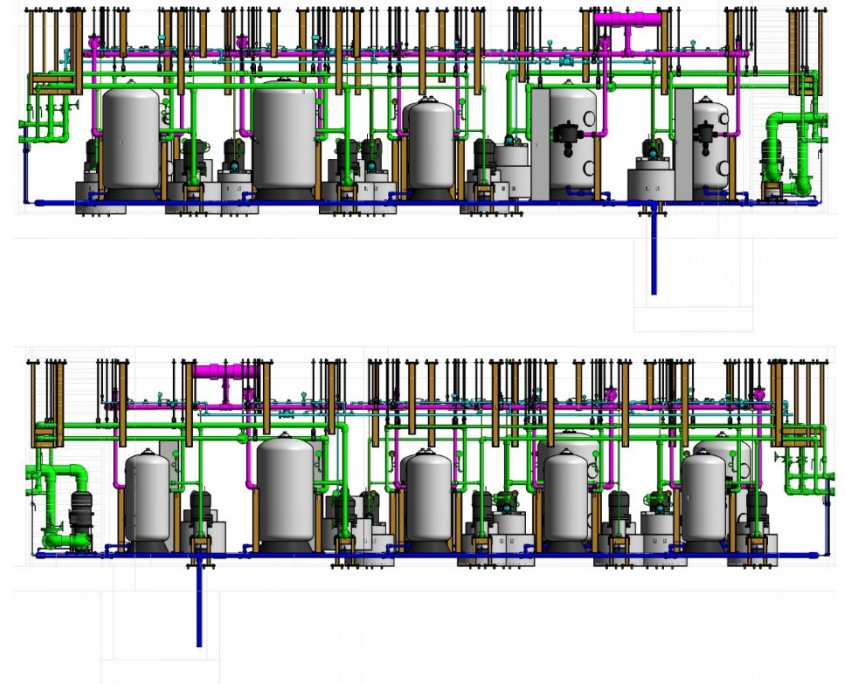
BRICKTOPIA & MINILAND  
Mechanical Room

Korea  
2020

TOP VIEW

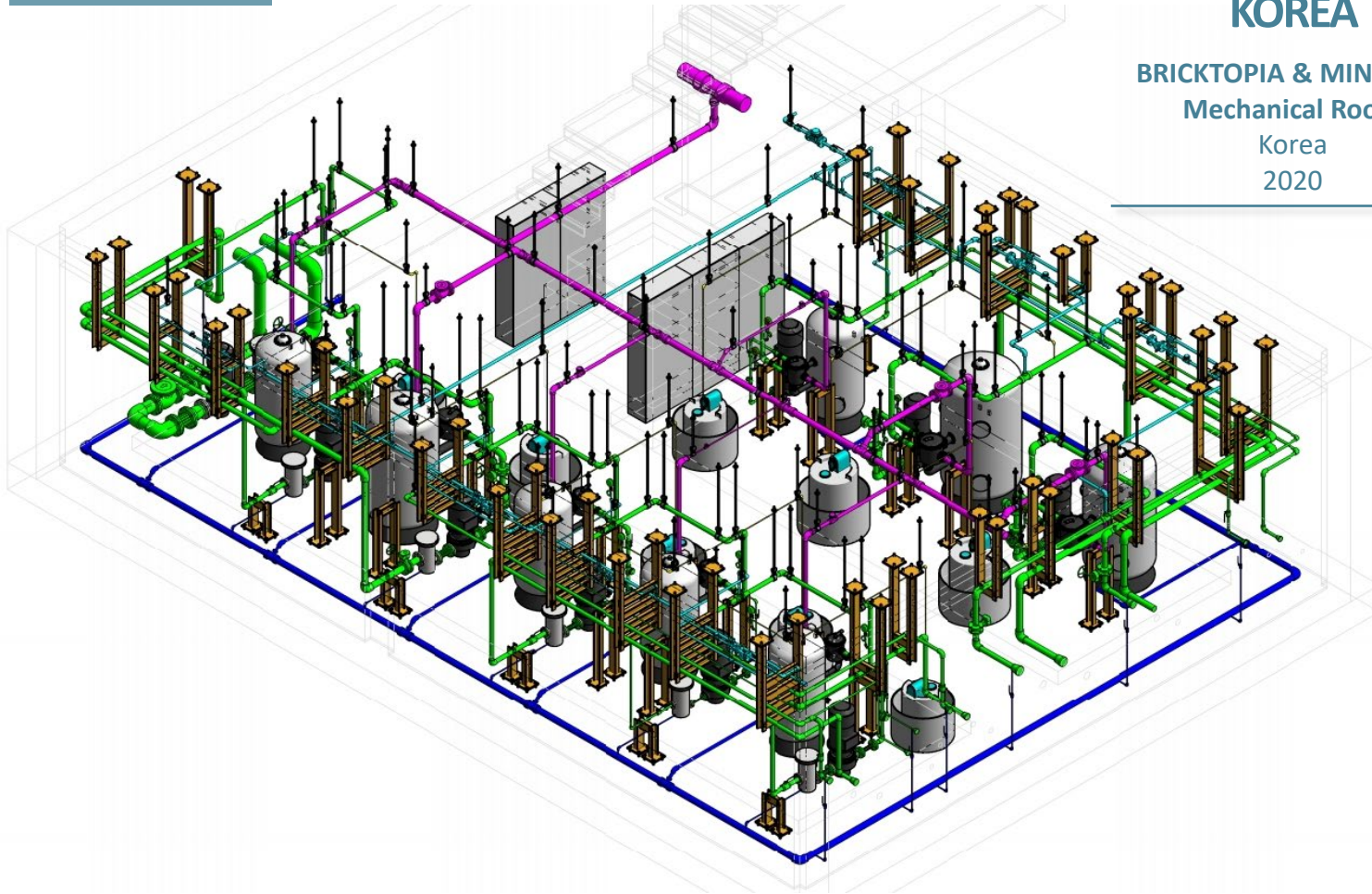


SIDE VIEW



# M.E.P Design – 3D Design of Water Treatment Room

ISO VIEW

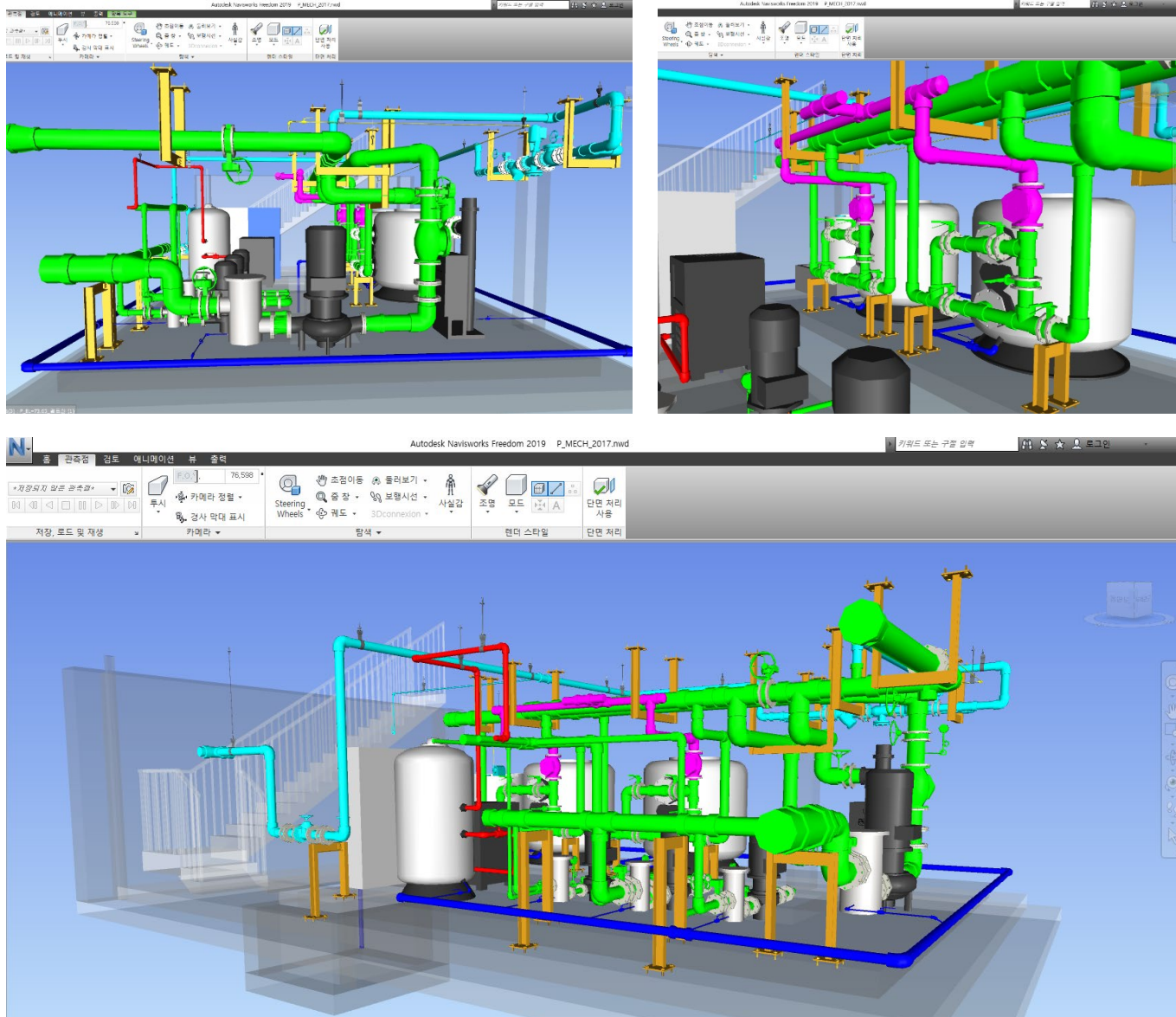


**LEGOLAND  
KOREA**

**BRICKTOPIA & MINILAND**  
Mechanical Room  
Korea  
2020



# M.E.P Design – 3D Design of Water Treatment Room

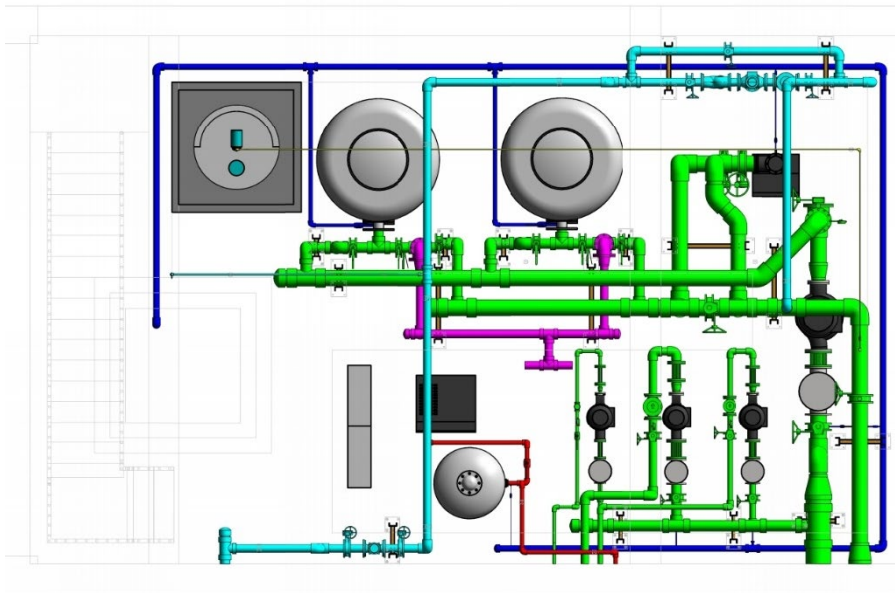


**LEGOLAND  
KOREA**

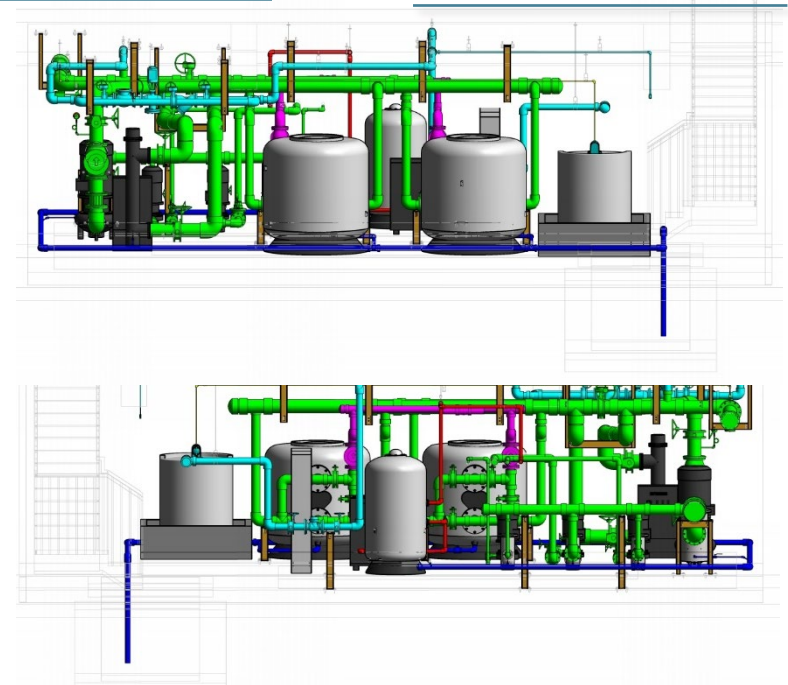
**PIRATE  
Mechanical Room  
Korea  
2020**

# M.E.P Design – 3D Design of Water Treatment Room

TOP VIEW



ISO VIEW

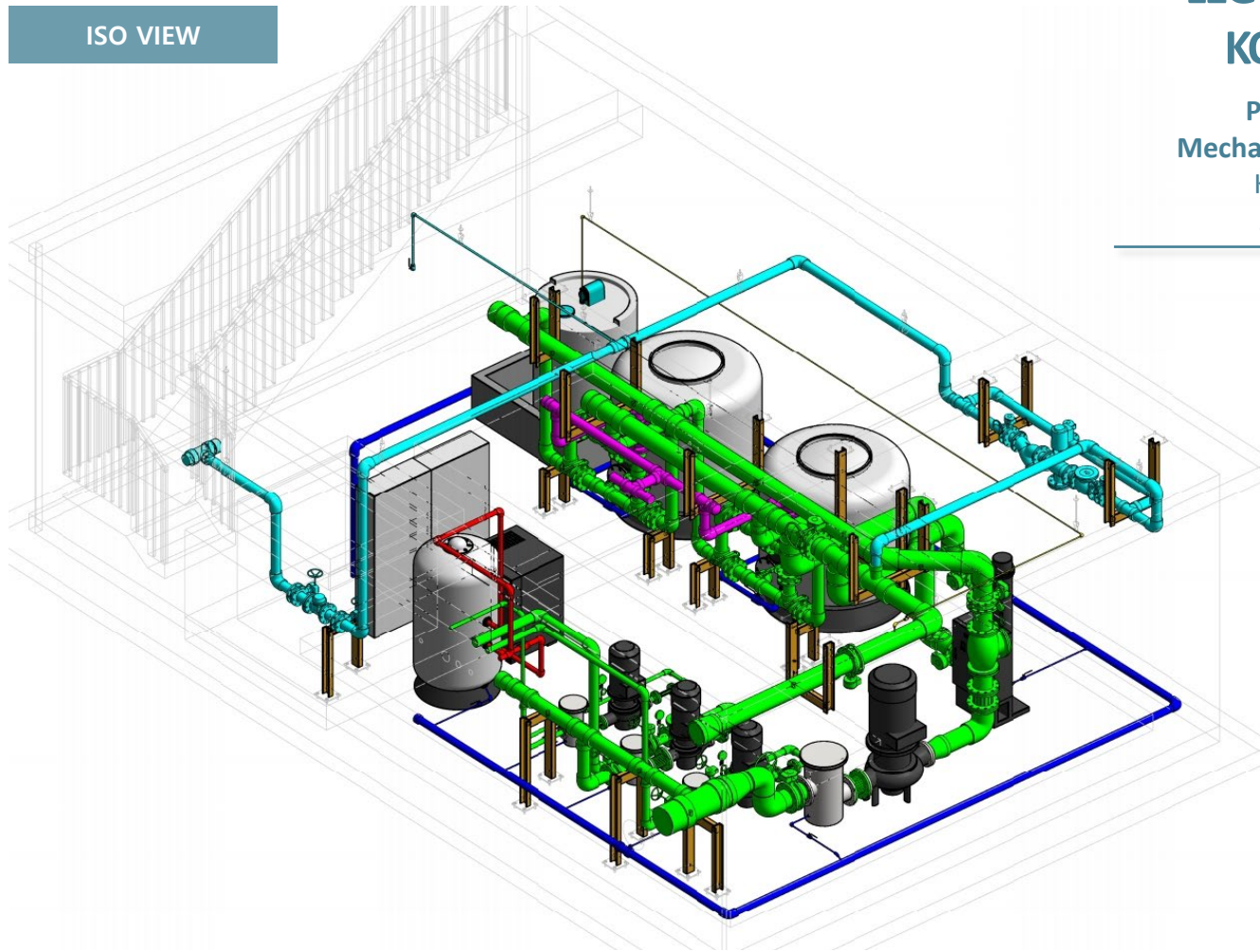


**LEGOLAND  
KOREA**

**PIRATE  
Mechanical Room  
Korea  
2020**

# M.E.P Design – 3D Design of Water Treatment Room

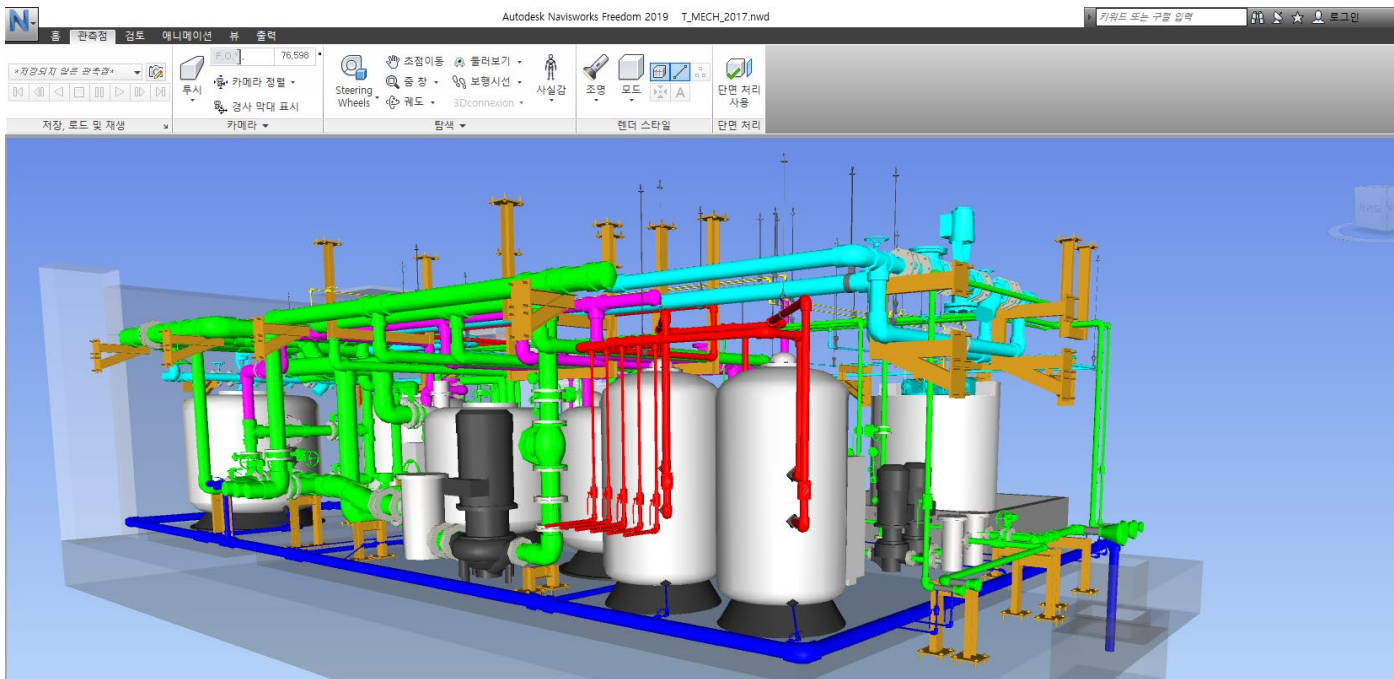
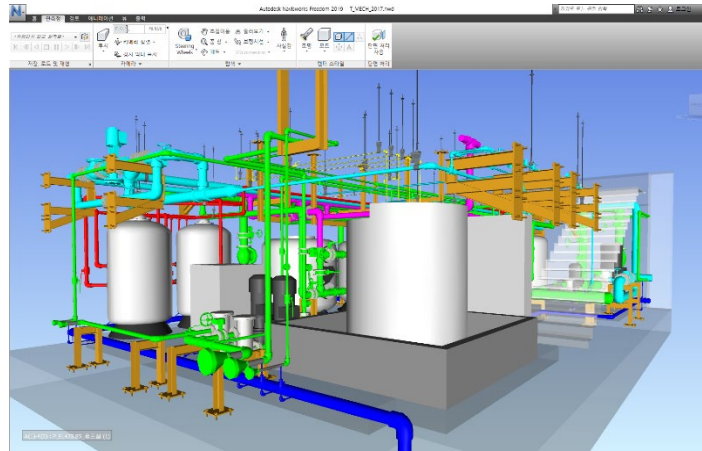
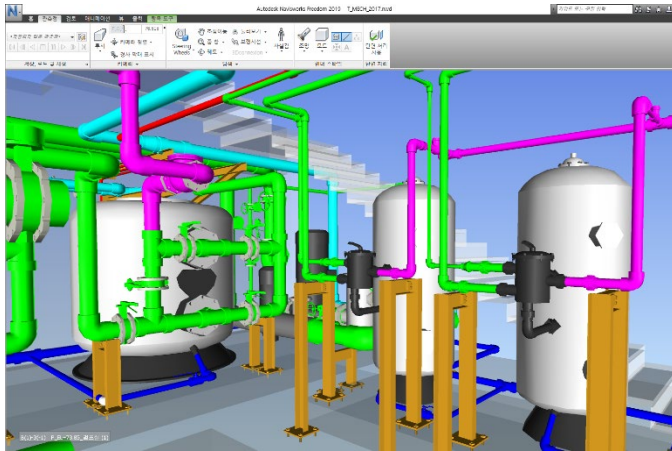
ISO VIEW



**LEGOLAND  
KOREA**

**PIRATE  
Mechanical Room**  
Korea  
2020

# M.E.P Design – 3D Design of Water Treatment Room

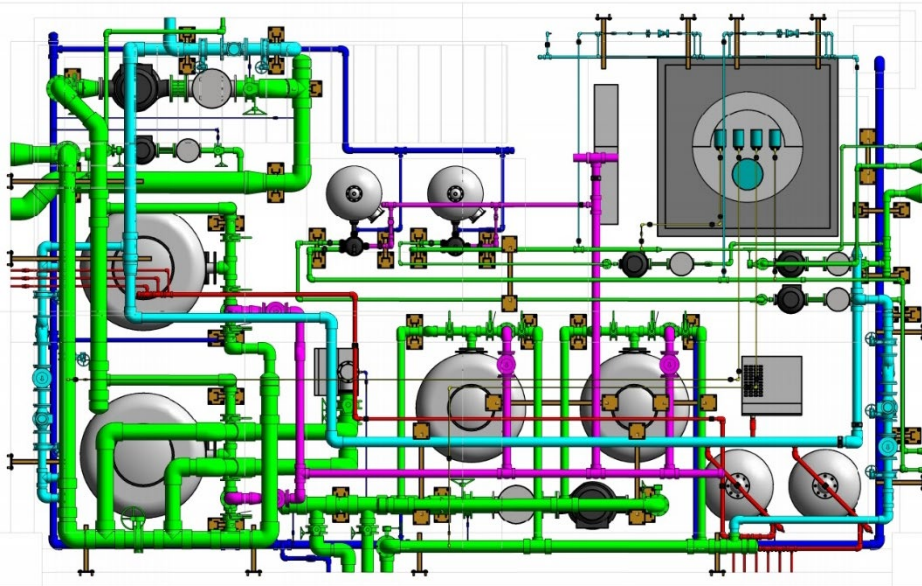


**LEGOLAND  
KOREA**

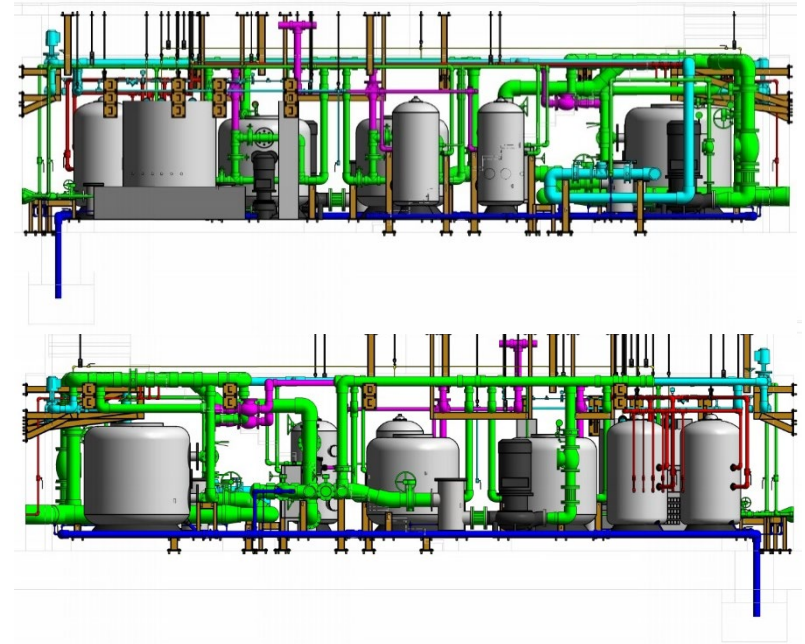
**LEGO CITY  
Mechanical Room**  
Korea  
2020

# M.E.P Design – 3D Design of Water Treatment Room

TOP VIEW



ISO VIEW



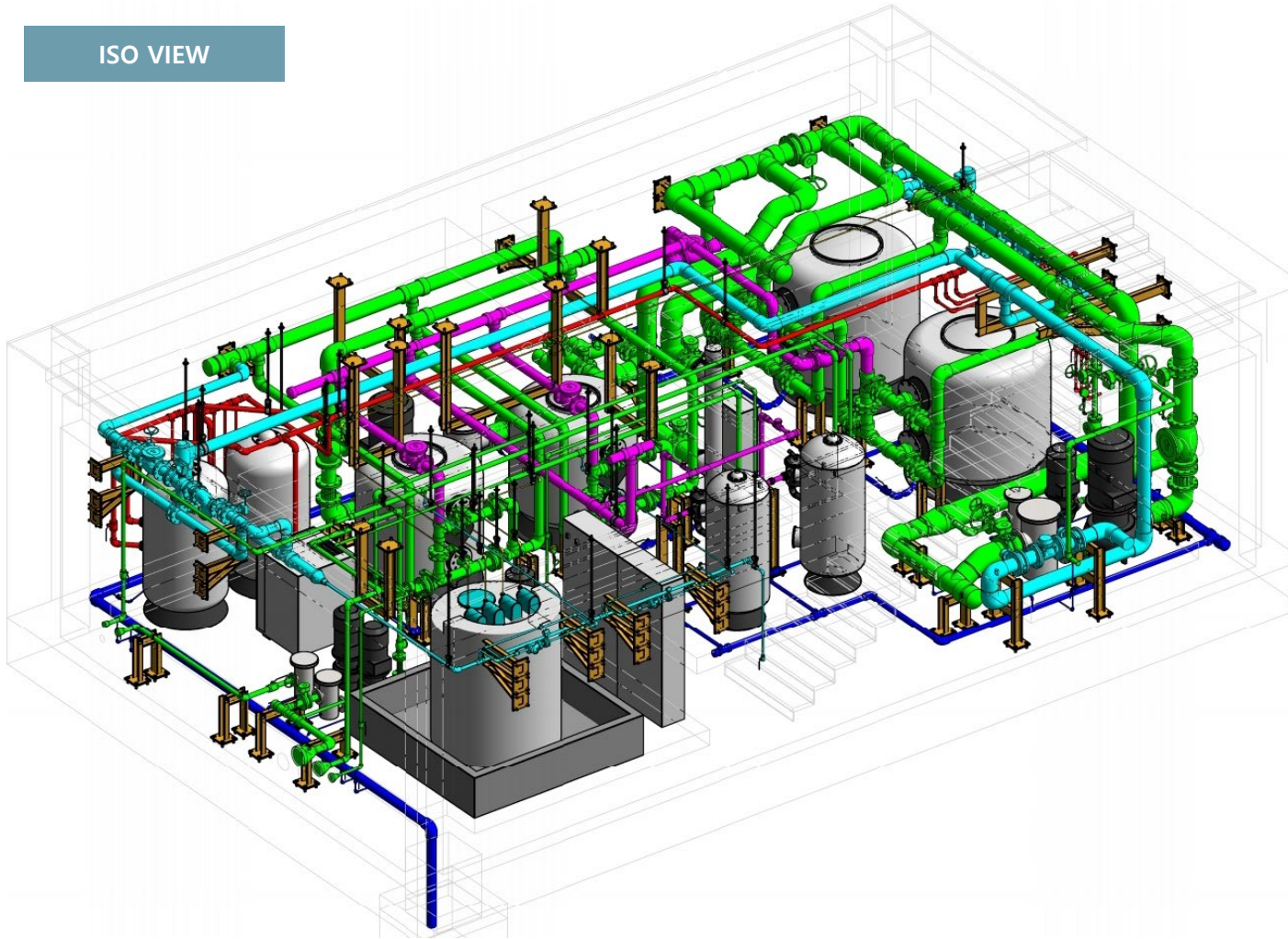
LEGOLAND  
KOREA

LEGO CITY  
Mechanical Room

Korea  
2020

# M.E.P Design – 3D Design of Water Treatment Room

ISO VIEW

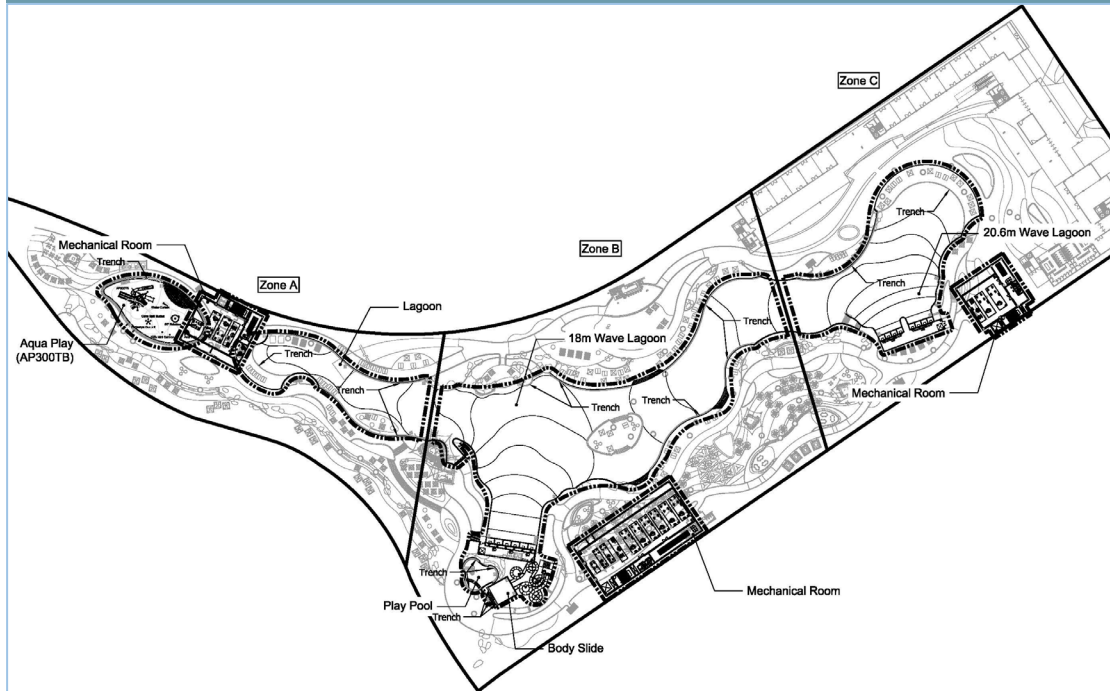


# M.E.P. Design – Water Treatment System

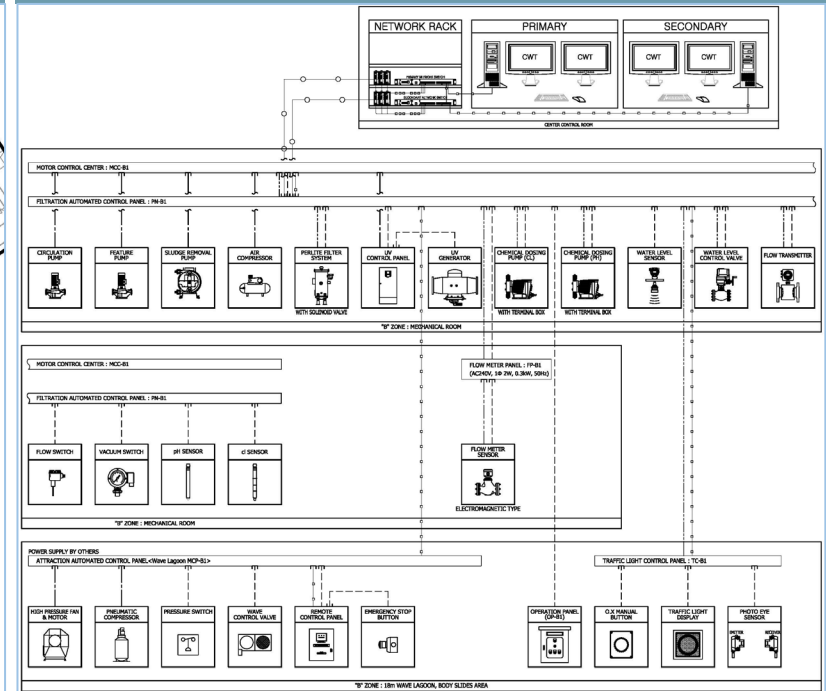
## HA LONG WAVE LAGOON

Viet Nam  
2022

Overall Site Plan

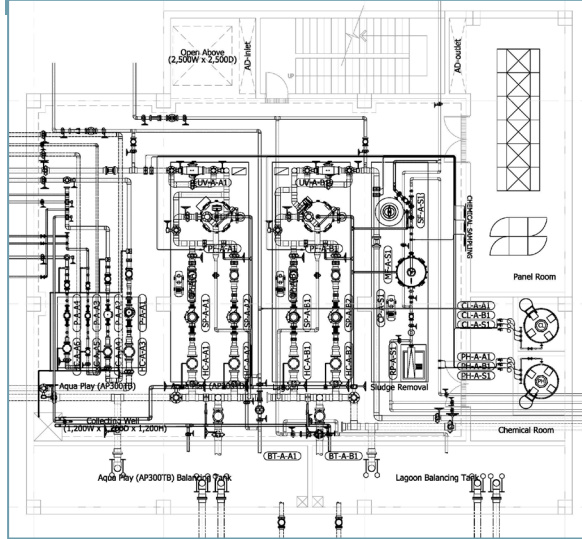


Overall Automated Control Power System Diagram

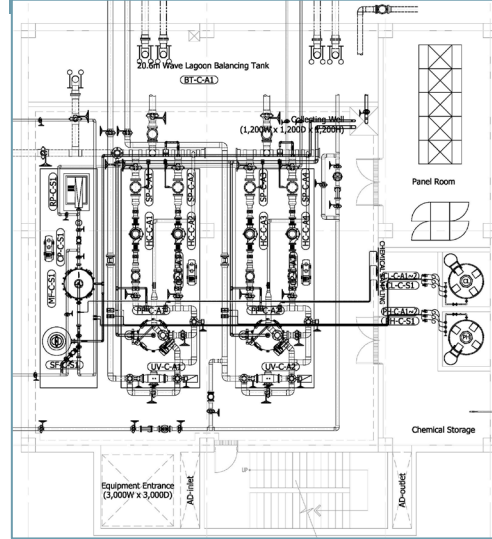


# M.E.P. Design – Water Treatment System

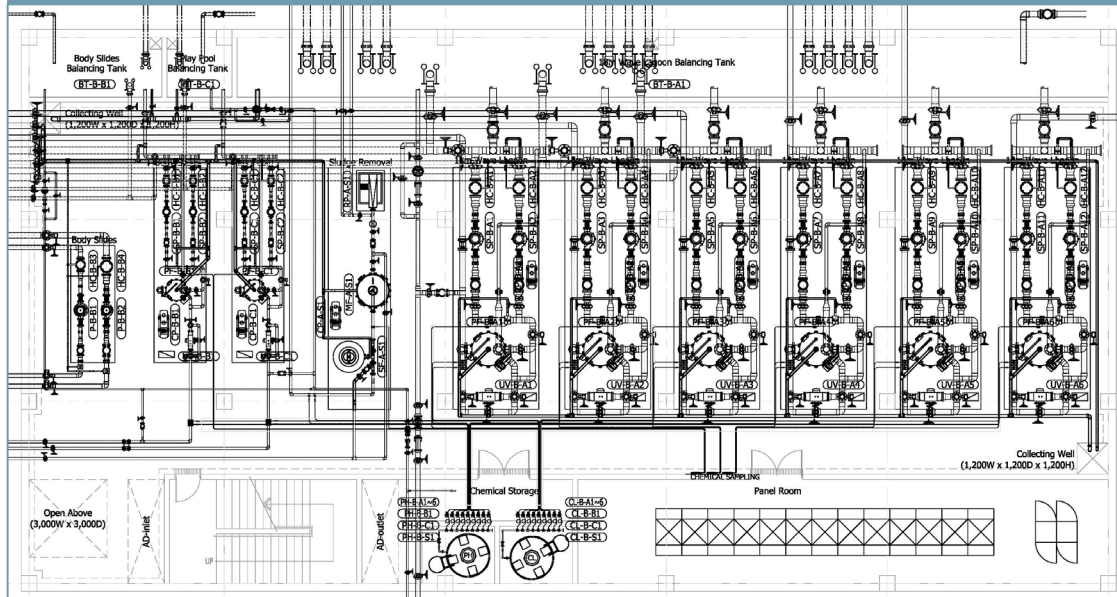
## ZONE A Mechanical Room Piping Plan



## ZONE C Mechanical Room Piping Plan



## ZONE B Mechanical Room Piping Plan



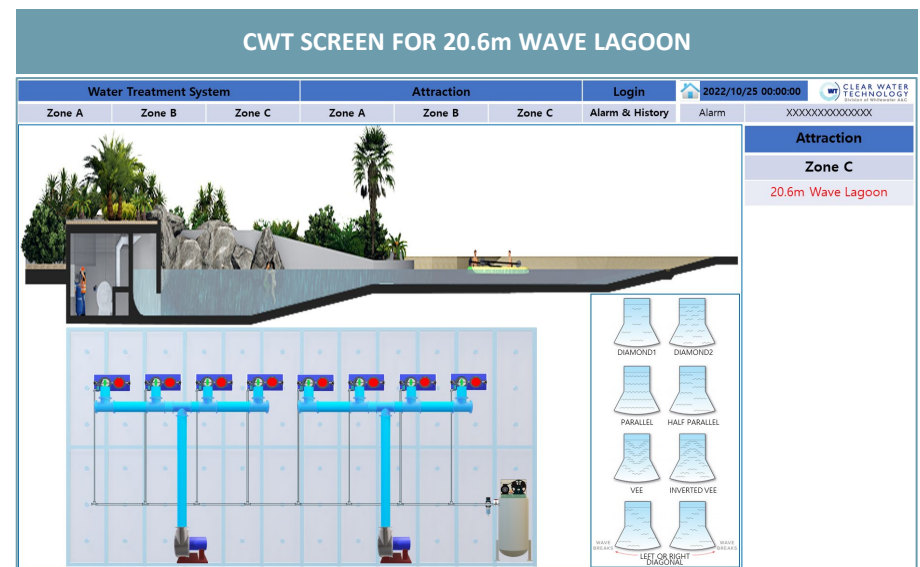
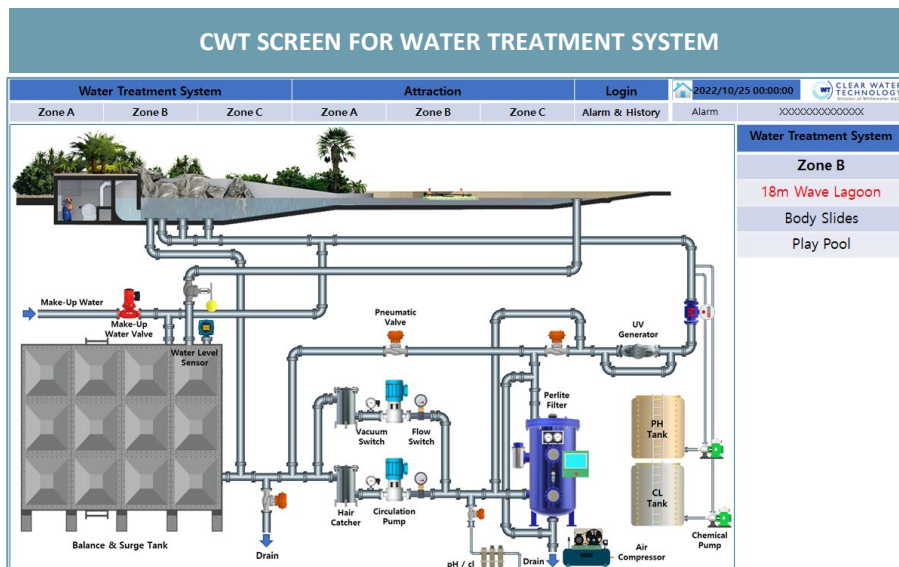
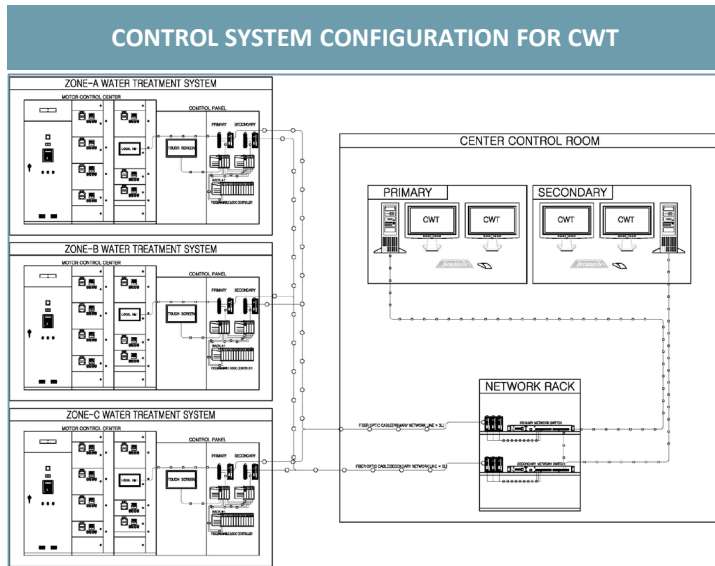
# HA LONG WAVE LAGOON

## Mechanical Room

Viet Nam  
2022

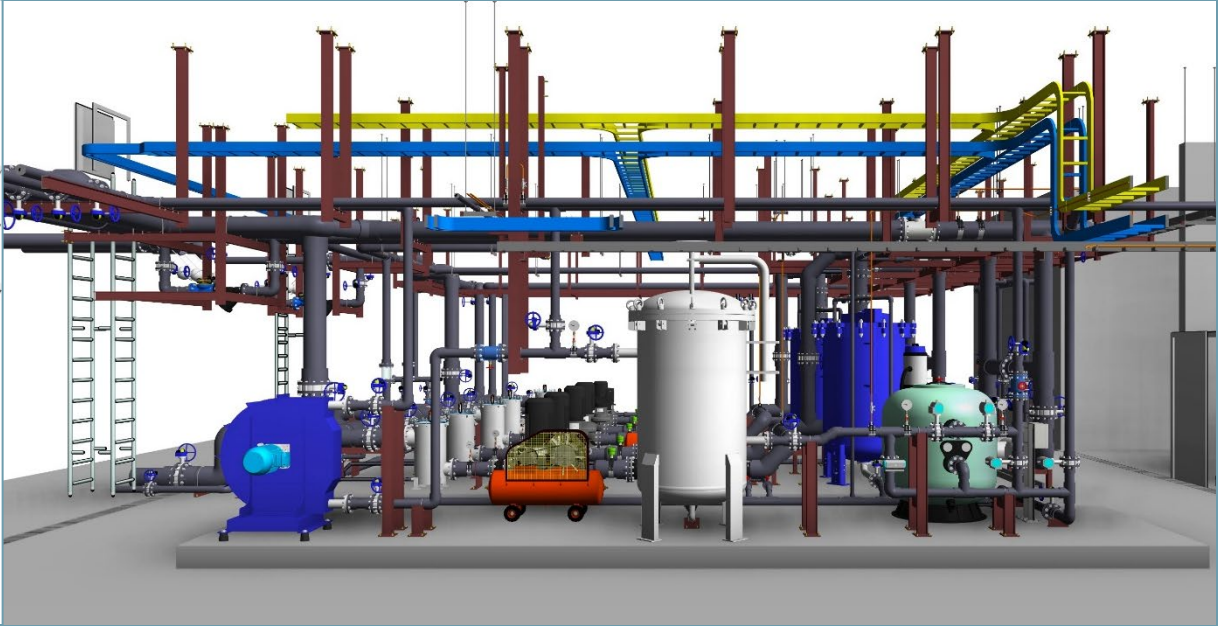
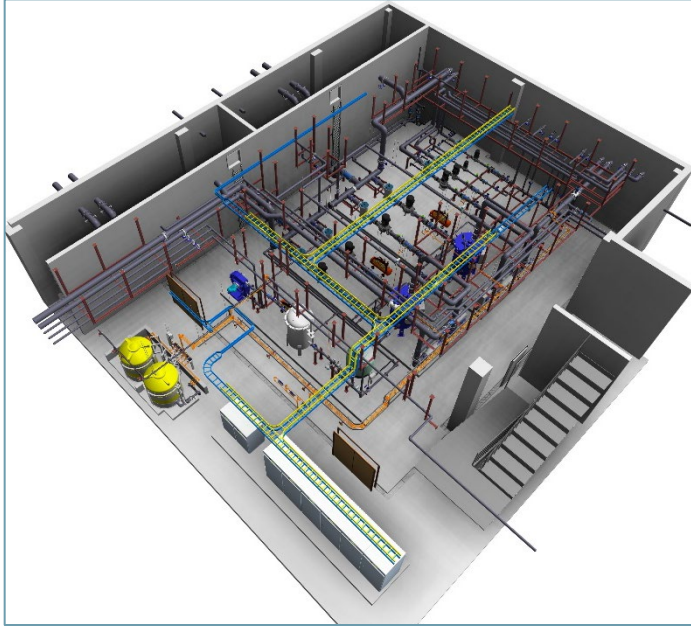


# M.E.P. Design – Water Treatment System



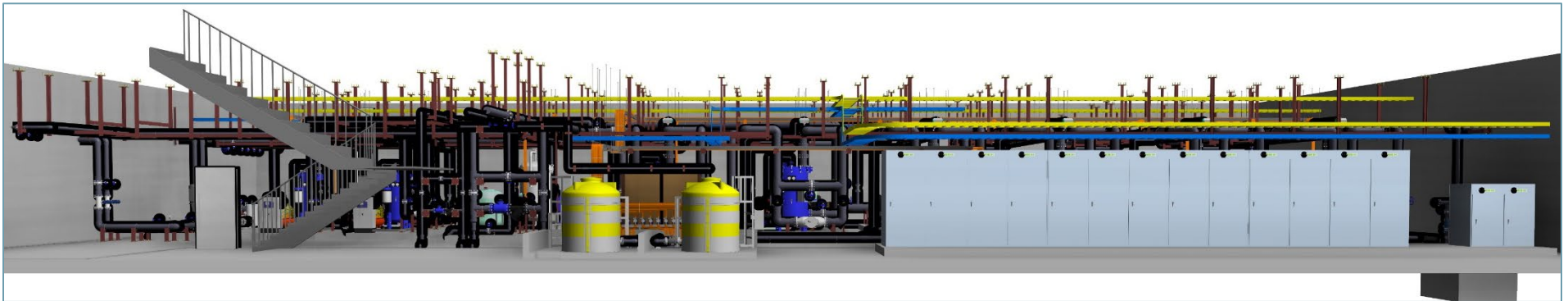
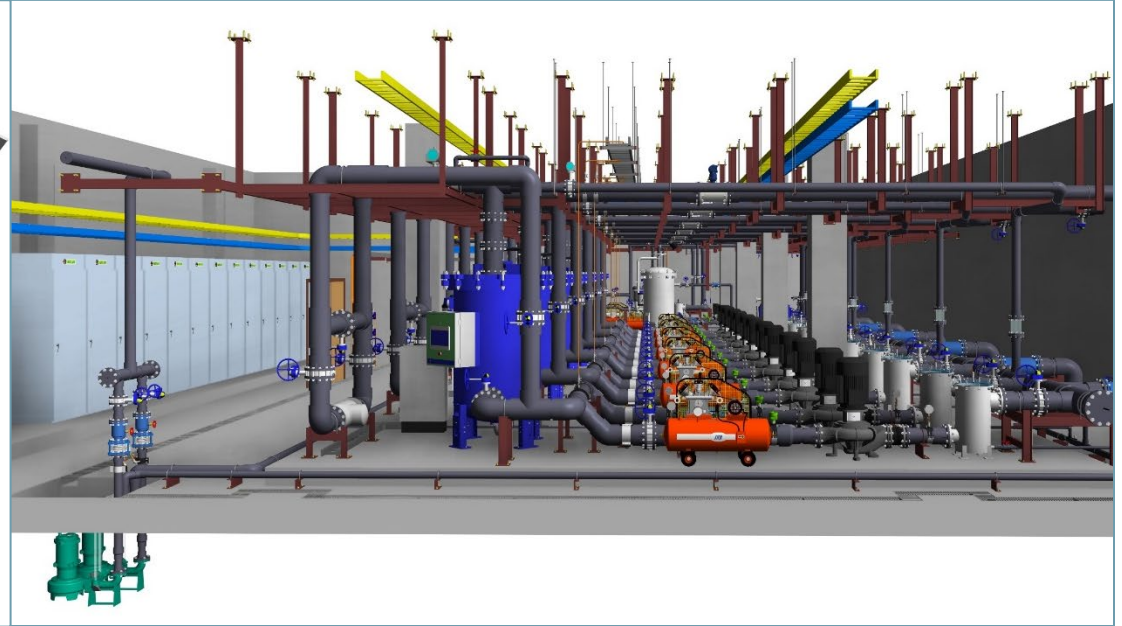
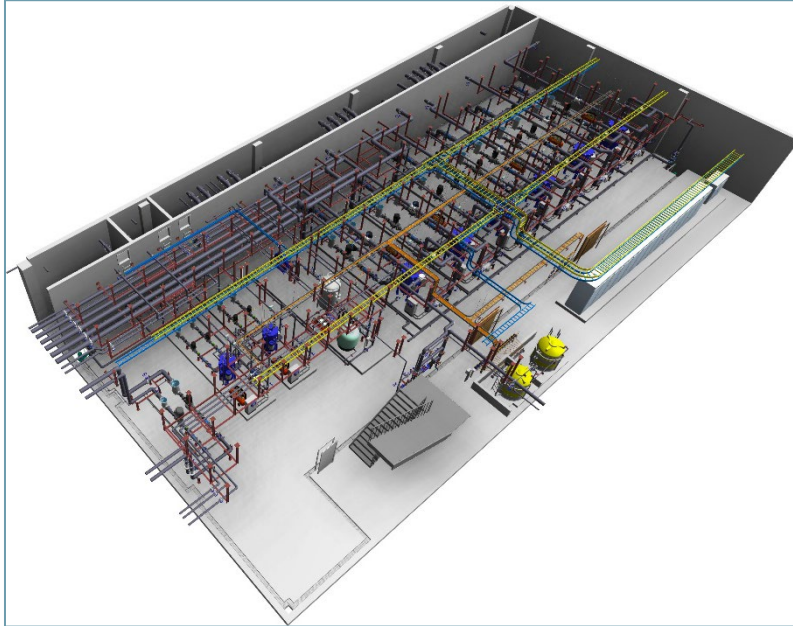
# M.E.P. Design – 3D Design of Water Treatment Room

ZONE A Mechanical Room



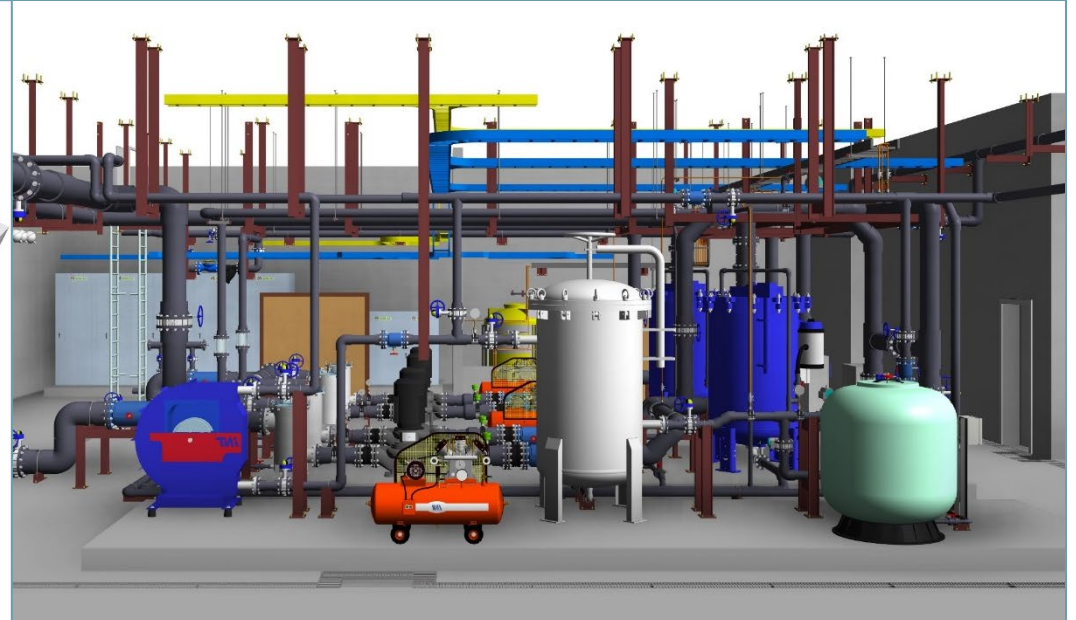
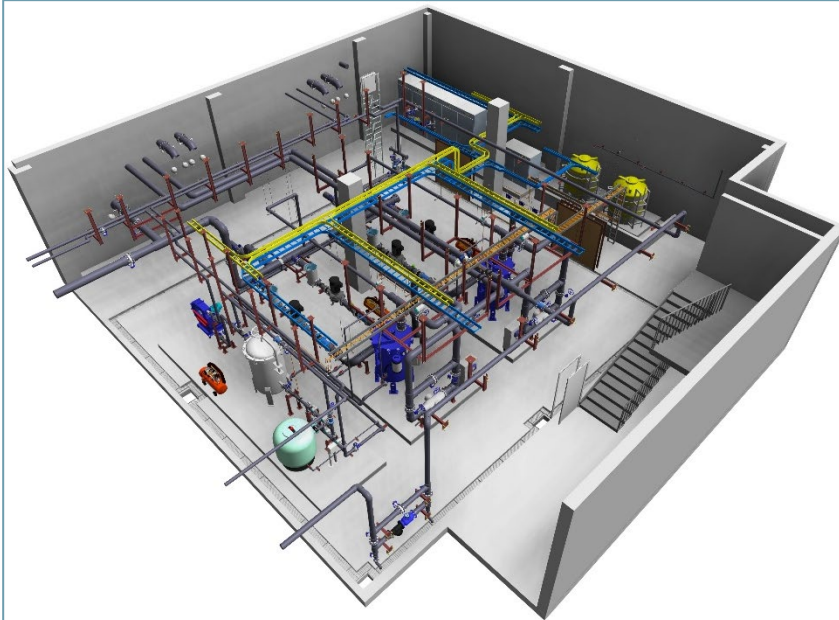
# M.E.P. Design – 3D Design of Water Treatment Room

ZONE B Mechanical Room



# M.E.P. Design – 3D Design of Water Treatment Room

ZONE C Mechanical Room



# Attractions Supply & Installation Experience

Park Name	Contract	Location	Year	Attraction
Hanwha Seorak Waterpia	Hanwha Hotel & Resort	Sokcho, Kangwondo, South Korea	2010	Phase1 : Abyss, Aqua Play (AP-600TB) Phase2 : Aqua Play (AP-1050b)
Ocean World	Daemyung Resort	Hongchon, Kangwondo South Korea	2005 ~ 2014	Phase1 : Family Raft Ride, Speed & Freefall Slides Phase2 : Aqua Play (AP-1050a), Tube & Body Slides Phase3 : Extreme River Phase4 : Surf Wave Pool Phase5 : GRF (Giant Rainfortress) Phase6 : Family Boomerango, Master Blaster Phase7 : Whizzard, double Python Phase8 : Super Extreme River
Ocean Bay	Daemyung Resort	Geoje, Kyungsangdo, South Korea	2012	Boomerango Tube & Body Slides Aqua Play (AP-650TB) Extreme River Family Wave Pool
Sol Beach	Daemyung Resort	Samcheok, Kangwondo, South Korea	2016	Slide Boarding Tube & Body Slides Extreme River Aqua Play (AP-650TB)
Caribbean Bay	Samsung Everland	Yongin, Kyungkido South Korea	2008 2011	Family Boomerango, Family Raft Ride Aqua Loop
One Mount	Halla Construction	Ilsan, Kyungkido, South Korea	2012	Family Wave Pool, Aqua Play(AP-1050) Aqua Play(AP-2500, Aqua Spray Tube Slide, Champagne Bowl Speed & Freefall Slides Boomerango, Colorado Drop Slide Whirling Dervish

## Attractions Supply & Installation Experience

Park Name	Contract	Location	Year	Attraction
Gimhae Lotte Waterpark	Lotte World	Gimhae, Kyungsanddo, South Korea	2014	Surf Wave Pool, Family Wave Pool, Extreme River, Speed & Freefall Slides, Double Python & Abyss, Tube & Body Slides, Rattler Whizzard, Aqua Loop, Family Raft Ride & Family Boomerango Flow Rider, Master Blaster GRF (Giant Rainfortress) Aqua Play (AP-1050a)
Everland	Samsung Everland	Yongin, Kyungkido South Korea	2014	Super Flume
High One Water World	Dongbu Construction	Jeongseon, Kangwondo, South Korea	2017	Rattler+Super Bowl 40 Abyss Boomerango
Saipan PIC Resort	E-Land	Saipan, U.S.A	2017	Boomerango Tube & Body Slides
Landing Jeju Resort	Shinwha World	Seogwipo, Jeju South Korea	2018	Family Wave Pool, Aqua Play (AP-1050a)
Hon Thom Aquatopia Waterpark	Glory Top Inc Limited by Sun Group	Hon Thom Island, Viet Nam	2018	Aqua Play Rain Fortress AP-RF5c Boomerango Constrictor+Python Master Blaster Flowrider Double Kiddie Boomerango, Aqua Sphere Lazy River, Wave Pool Water Treatment Construction Supervision

## Attractions Supply & Installation Experience

Park Name	Contract	Location	Year	Attraction
Saipan World Resort	Saipan World Resort	Saipan, USA	2020	Body Slide Aqua Play AP750TB Aqua Spray Toy Wave Pool
Shinan Wellhilli Waterpark	Shinan Construction	Gangwon-do, South Korea	2020	Extreme River Surf Wave Pool Pool Sider (Body Slide) Colorado Drop + Boomerango + Aqua Tube Manta + Tailspin Aqua Play (AP-1050) Aqua Spray
Legoland Korea	Hyundai Construction	Chun cheon, South Korea	2021	Water Treatment Equipment Installation

# Attractions Supply & Installation Experience



## SAMSUNG CARIBBEAN BAY WATERPARK

Korea  
1996~2011





# Attractions Supply & Installation Experience

## DAEMYUNG OCEAN WORLD

Korea  
2006~2015



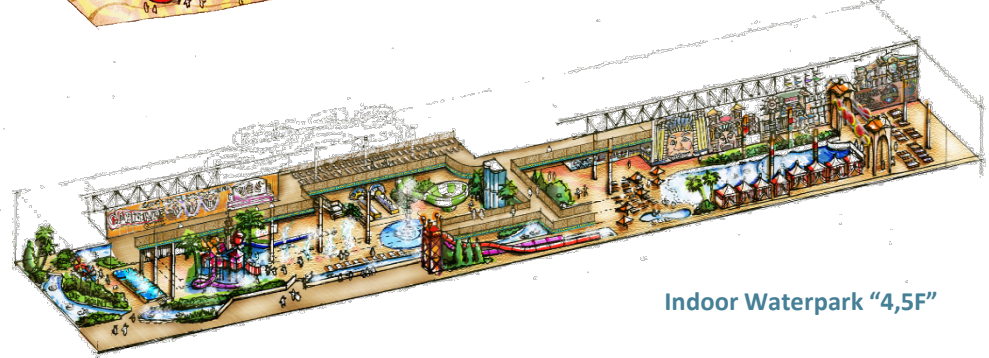
# Attractions Supply & Installation Experience

## ILSAN ONE MOUNT WATERPARK

Korea  
2012



Outdoor Waterpark "7,8F"



Indoor Waterpark "4,5F"



# Attractions Supply & Installation Experience

## DAEMYUNG GEOJE WATERPARK

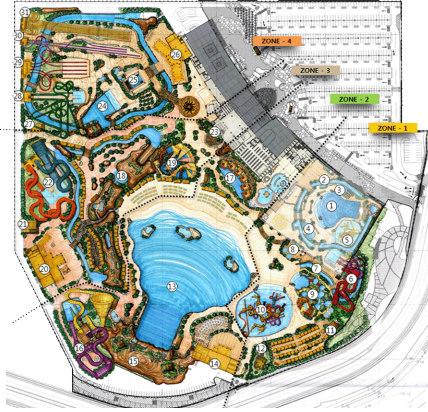
Korea  
2013



# Attractions Supply & Installation Experience

## LOTTE GIMHAE WATERPARK

Korea  
2014~2015



# Attractions Supply & Installation Experience

## BEIGUO WATER WORLD

China  
2016



# Attractions Supply & Installation Experience

## AQUATOPIA WATERPARK

Viet Nam  
2019



# Attractions Supply & Installation Experience



## WELLIHILLI WATERPARK

Korea  
2020



# Attractions Supply & Installation Experience

## HIGH 1 WATER WORLD

Jeongseon-gun, Gangwon-do,

Korea

2018

Indoor : 25,024m<sup>2</sup>

Outdoor : 26,014m<sup>2</sup>





# Water Treatment Equipment Installation



## AQUATOPIA WATERPARK

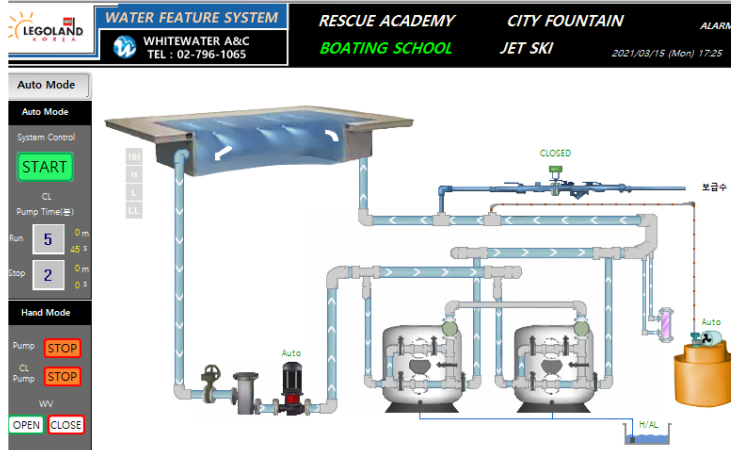
Viet Nam  
2020



# Water Treatment Equipment Installation

LEGOLAND  
KOREA

Korea  
2021





## HANDLING ITEMS

PERLITE FILTER

CARBON FILTER

SAND FILTER

PUMP

CHEMICAL SYSTEM

HAIR CATCHER & COMPRESSOR

UV SYSTEM

OZONE SYSTEM

STOVE HEATER

STEAM GENERATOR

BADE POOL SYSTEM

CONTROL PANEL

FAR-INFRARED RADIATION STOVE

# Perlite Filter



### Technical Data

	Specification
Filer Area	14.46 to 150.72 m <sup>2</sup>
Recommended Flow Rate Range	57 to 640 m <sup>3</sup> /h
Material	SS400 + ANTI OZONE COATING
Install Area	2.23 to 6.7 m <sup>2</sup>

### Proven Water Savings

Perlite filter drastically lowers water usage by eliminating the amount of backwash water compared to the activated carbon filters by 90%.

### Reduces Energy Harmful Chemicals

Dramatic reduction of backwash water is directly linked to savings in make-up water along with the chemicals and fuel for re-heating.

### Construction Savings

One-third (1/3) of the space is required compared to the activated carbon system.

### Maintenance Cost Savings

Perlite media has more competitive price than sand or activated carbon media. Also, quick and easy media discharge and replacement lowers labor cost.

### Maximizes the System Performance

Perlite filter automatically performs the “BUMP” function to regain the filtering performance. As the air escapes from the bump section, the tube surface. Once the bump tire is inflated, the sheet is lifted up and forces water into the tubes to expand the tube to drop the perlite completely. The bump cycle repeats 10 times (or as programmed) of the bump cycle, the perlite media automatically builds upon to the tubes and restarts the filter cycle.

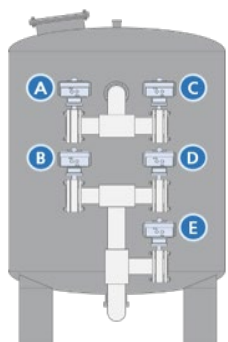
# Activated Carbon Filter



ACTIVATED CARBON MEDIA

### Technical Data

- Activated Carbon  
Filling Height: 0.5~0.7m
- Height of nonfiltered material :  
30% of the filter height
- Line Velocity : 30m/hr  
However, if used together  
with the Perlite Filter, the Line  
Velocity should be selected as  
40m/hr.



### Valve Control Cycle Steps

Valve	Cycle Steps			
	Filtration	Backwash	Settle	Rinse
A Filtration Inlet	Open	Closed	Closed	Open
B Backwash Inlet	Closed	Open	Closed	Closed
C Filtration Outlet	Closed	Open	Closed	Closed
D Rinse Outlet	Closed	Closed	Closed	Open

## Excellent for removing organic components and residual disinfectant

Activated carbon is commonly used for removing organic constituents and residual disinfectants in water supplies. This not only improves taste and minimizes health hazards; it protects other water treatment units such as reverse osmosis membranes and ion exchange resins from possible damage due to oxidation or organic fouling. Activated carbon is a favored water treatment technique because of its multifunctional nature and the fact that it adds nothing detrimental to the treated water.

## Two Principal Mechanisms

Two principal mechanisms by which activated carbon removes contaminants from water are adsorption and catalytic reduction. Organics are removed by adsorption and residual disinfectants are removed by catalytic reduction.

## Simple and Efficient Construction Process Control

Carbon Filter is a simple and effective water treatment equipment in the filtration system.

Carbon Filter can perform filtration, backwash, settle, and rinse process easily by using pneumatic valve system.

# Sand Filter

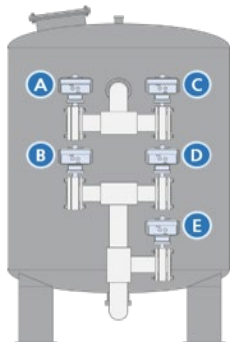


- **Technical Data**
  - Sand Filling Height : 0.7~1.2m
  - Height of nonfiltered material : 40% of the filter height
  - Line Velocity : 40m/hr

## Excellent Performance with Deep Sand Bed!

### Application Suggestions

- Competition Swimming Pool
- Aquatic Park and Aquarium
- Commercial Spa, Fountain
- Water Treatment Plant



### Valve Control Cycle Steps

Valve	Cycle Steps			
	Filtration	Backwash	Settle	Rinse
A Filtration Inlet	Open	Closed	Closed	Open
B Backwash Inlet	Closed	Open	Closed	Closed
C Filtration Outlet	Closed	Open	Closed	Closed
D Rinse Outlet	Closed	Closed	Closed	Open

### Product Features

- Multi-layer construction: corrosion-resistant and chemical-resistant
- UV resistance, suitable for operation under prolonged exposure under sunlight
- Deep sand bed allows for high quality filtration
- Bobbin wound fiberglass reinforcement with polyester resin
- Available with laterals or nozzle plate system for air purification capabilities
- Optional accessories include sight glass, manhole, union drain, and air purge.



# Double Suction Pump

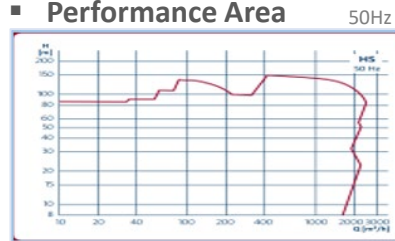


## Technical Data

	50Hz Range	60Hz Range
Flow Rate	30 to 4,500m <sup>3</sup> /h	30 to 2,500m <sup>3</sup> /h
Head	10 to 140 m	15 to 150 m
Motor	2.2 to 630 kW (IE2/IE3)*	4 to 315 kW (IE2/IE3)*
Pressure Rating	25 Bar, Max.	25 Bar, Max
Ambient Temperature	-40 to 150°C	40 to 150°C

\* Depending on region

## Performance Area



\*For 60Hz Range, please check the manufacturer.

## Perfect Balance

Split case is characterized by its ability to virtually eliminate radial loads by hydraulically balancing the liquid within the casing.

The balancing ability is made possible by the unique double volute construction, which provides two individual volute passageways to guide the flow out of the impeller and into the discharge.

Moreover, the split case provides the double suction impeller, which extends the life of the pump by neutralizing the axial forces. The double suction construction has several great benefits :

- Improved Efficiency
- Minimized Vibration
- Extended Seal and Bearing Life
- Quiet Operation

## Broadband High Efficiency

The impeller design of the split case has been specifically matched to the casing of the Pump in order to provide broadband high efficiency. As a result, the operating costs of the horizontal split case are reduced dramatically giving it a valuable low life cycle cost.





**Chemical Controller**



**Chemical Sensor**



**Chemical Feed Pump**



**Probe Housing**

## Chemical System

CWT offers full product lines from simple transformation of measured signals for transmission to a central control unit via user-calibrated instruments with measured variable display, to controllers for complex control tasks.

## Chemical Controller

Chemical controller can be used for control tasks in potable water treatment, wastewater treatment and many other areas. Safe, convenient and clear, thanks to the large illuminated graphic display, plain text operating menu and chemical (pH, CL) sensor monitoring.

## Chemical Feed Pump

All-purpose chemical feed pump for the metering of liquid media in water treatment and chemical processes : solenoid driven metering pump. Cost-effective, overload-proof, adaptable to signal transducers fitted. Capacity range : 0.74 ~ 32 l/h, 25~2 bar

## Chemical Sensor & Probe Housing

Chemical sensors deliver exact, reliable and application adjusted measured values in real time – for the monitoring or control of processes. The chemical sensor can be optimally integrated into the chemical control loop together with controllers and metering pumps. Numerous probe housings are available for individual integration into the process.

# Pump Strainer – Hair Catcher, Air Compressor

## HAIR CATCHER



### Technical Data

Type	Flow Rate
"A"	166~500 ℓ/min
"B"	500~1,660 ℓ/min
"C"	1660~3,300 ℓ/min
"D"	3,300~5,830 ℓ/min
"E"	5,830~8,330 ℓ/min
"F"	8,330~10,830 ℓ/min

### Safety First

Hair catchers are typically installed prior to the pump to filter the relatively big solid impurities to protect the pumps, meters and valves.

### From the user's perspective

We have the capability and experience to economically fabricate hair catcher to exactly meet your needs.

Hair catcher cap is designed to be see through "Acrylic" for user to check any time and easy for maintenance.

## AIR COMPRESSOR



### Technical Data

	Specification
Tank Size (Configuration)	50 to 400 ℓ
Flow Rate	133 to 901 ℓ/min
Capacity	9.0 bar, 130 psi
Power	1HP~7.5HP

### Low Noise Design

Crank shaft, Design Teamed as the "v" type cylinder and dynamics, guarantees the low vibration and noise upon operation.

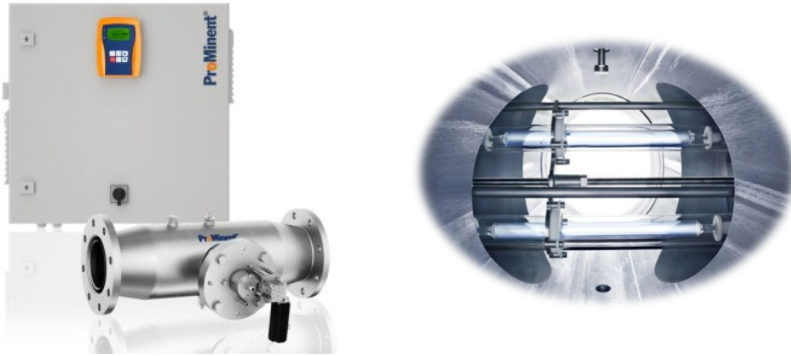
Lead valve, Design Teamed focused on the high efficiency and low noise, guarantees high volume efficiency and low noise and vibration upon operation.

### Excellent Cooling Performance

Flywheel pulley is equipped with cooling fan of high efficiency and discharge manifold high cooling efficiency considerably decrease the temperature of discharged air.

# UV System, Ozone System

## UV SYSTEM



### Germicidal Effect

UV-C light directly attacks the vital DNA of microorganisms such as viruses, bacteria, parasites, yeasts and fungi.

The radiation initiates a photochemical reaction and destroys the genetic information contained in the DNA. The bacteria lose their reproduction capability and are made harmless.

### Reduction for Undesirable Substances

In the production of foodstuffs and pharmaceutical products, oxidizing agents such as ozone, chlorine dioxide in production waters are reliably removed, eliminating the need for expensive active carbon filters.

## OZONE SYSTEM



### A Universal Disinfectant

Generated in an environmentally friendly manner from oxygen or air, the ozone decomposes into oxygen again after use.

### Disinfection and Oxidation

The greatest advantage of ozonisation is that it produces no by products. In water, ozone breaks down into oxygen again with a half life of a few minutes. In potable water disinfection it is mainly used when oxidation is desired in addition to disinfection, allowing inorganic substances such as iron and manganese to be easily removed.

# Stove Heater, Far-Infrared Radiation Stove, Steam Generator

## STOVE HEATER



### Finnish Stove Heater

For dry Sauna with high temperature (90°C -110°C)

### Savonia Family

- Savonia is a testament to SAWO’s dedication to create a heater that truly breathes life into your sauna experience
- Aesthetically designed and made from superior quality chrome steel to guarantee high-class performance and durability
- Easily installed with adjustable legs and can stand on the floor.
- Capable of withstanding extreme heat, its performance does not degrade through repeated use, offering lasting enjoyment that cannot be compared

## FAR-INFRARED RADIATION STOVE



- For Mid-Low Temperature Sauna
- Working temperature: 80-90°C
- Quickly sweat away toxins
- Cancer prevention, pain relief, skin therapy
- Deep sleep, stress relief, prevention of geriatric diseases

## STEAM GENERATOR



Controller    Steam Nozzle    Installation Picture

- Rapid rise in temperature
- Working temperature: 50-60°C
- Easily installed in hot, humid environments
- Skin care, relaxation, promote metabolism
- Induce deep sleep, stress relief

# Bade Pool System

### Ball Neck Shower



- High water pressure from both sides of specially designed nozzles
- Distinct effect on shoulder and scapula
- Stress relief and smoothing muscle aches

### Neck Shower



- Neck exclusive massage using high water pressure
- Relieving shoulder pain and back of the neck
- Increasing circulation

### Sitting Jet



- Back exclusive massage while sitting on our specially designed Aqua-jet Chair Modules
- Back, waist, calves and soles
- Increasing circulation and relieve tension

### Dream Jet



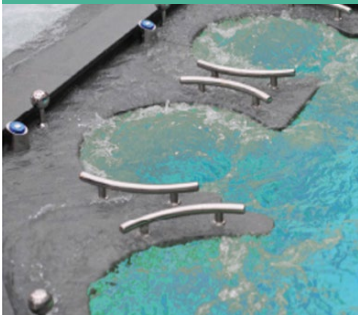
- Sit back and relax on our Aqua-jet chair modules which is providing comfort with a full body massage
- Increasing circulation and digestion

### Hydro Jet



- Full-body massage using jet stream in three directions
- Massage the entire body including back, waist, thigh calf, soles, etc.
- Effective for circulation, neuralgia, and back pain

### Floating Jet



- Massage with strong water pressure and bubbles generated by nozzles installed on the floor
- Increasing circulation and digestion

### Body Massage



- Jet stream from the nozzles installed in different levels
- Choose desired position from back to ankles
- Increasing circulation and relieve muscle pain

### Power Massage



- Strong power massage from jet-stream generated by 3-way nozzles installed on the wall
- Power jet stream from the nozzles installed in different levels

### Magnum



- Full body massage using jet-water generated through 4-way nozzles
- Install in the middle of the bath to increase space utilization
- Massage chest, stomach, back and waist
- Relieve muscle pains

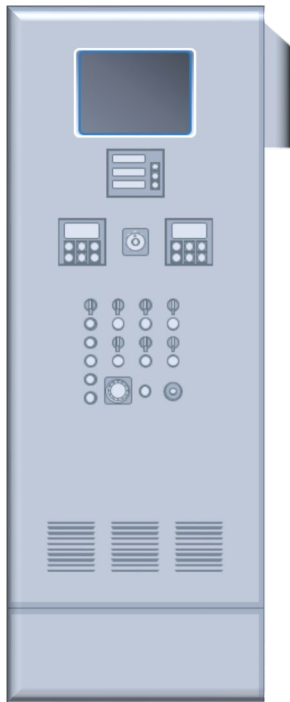
### Walking Jet



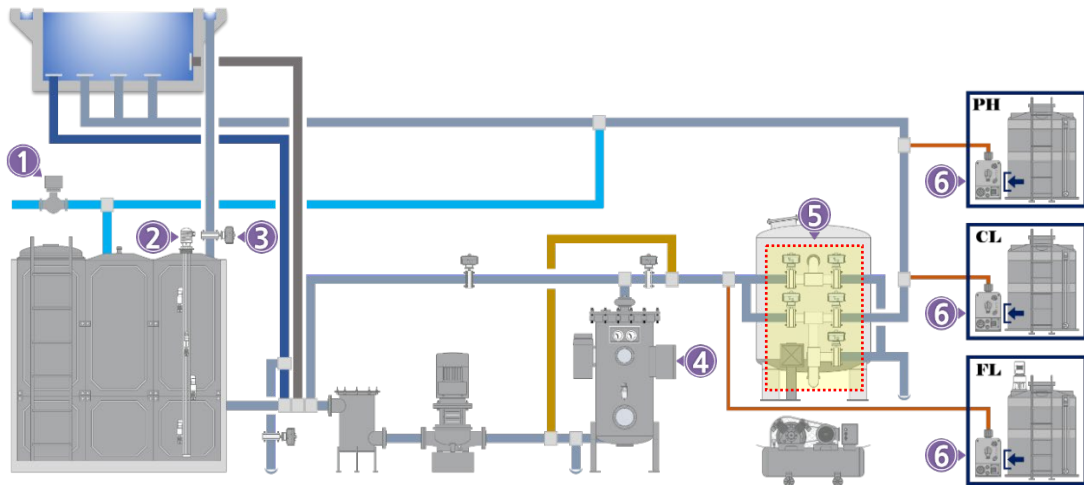
- A system where a strong jet stream is created from nozzles installed on the wall and massages the strong current upside down
- Strengthen waist and legs

# Water Treatment Control Panel

## Appearance



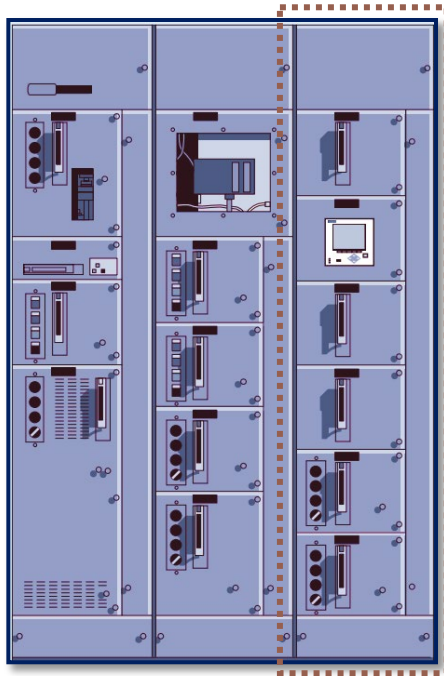
## Features



- 1. Supply Power : 3Phase, 380V, 50/60Hz
- 2. Enclosure Type : IEC IP 54 (CWT STANDARD)
- 3. Control Point : ① Make-up Water Valve ② Water Level Sensor ③ Overflow Valve
- ④ Perlite Filter ⑤ Carbon Filter ⑥ Chemical Pump
- 4. Panel Size : 900(W) X 2100(H) X 450(D)

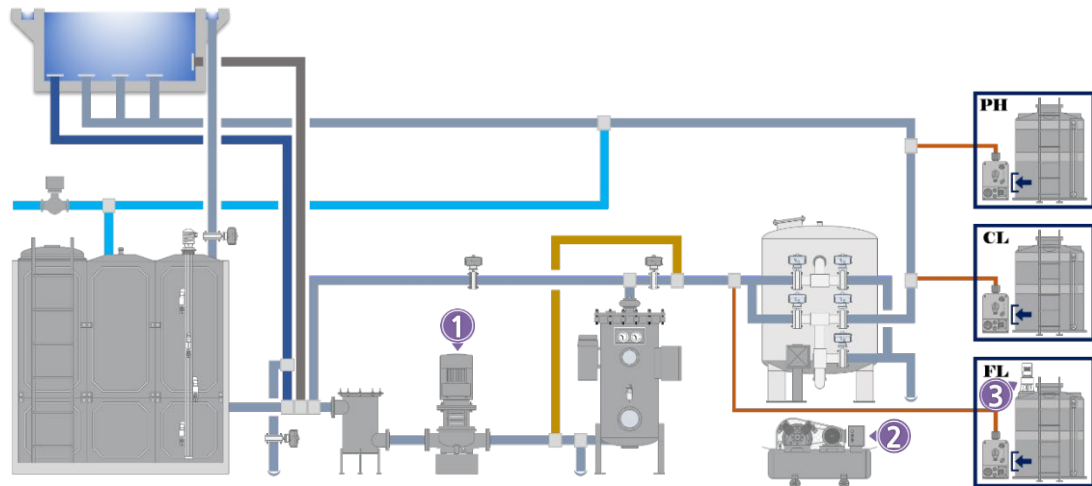
# Water Treatment Control Panel - Motor Control Center

## Appearance



The standards structure

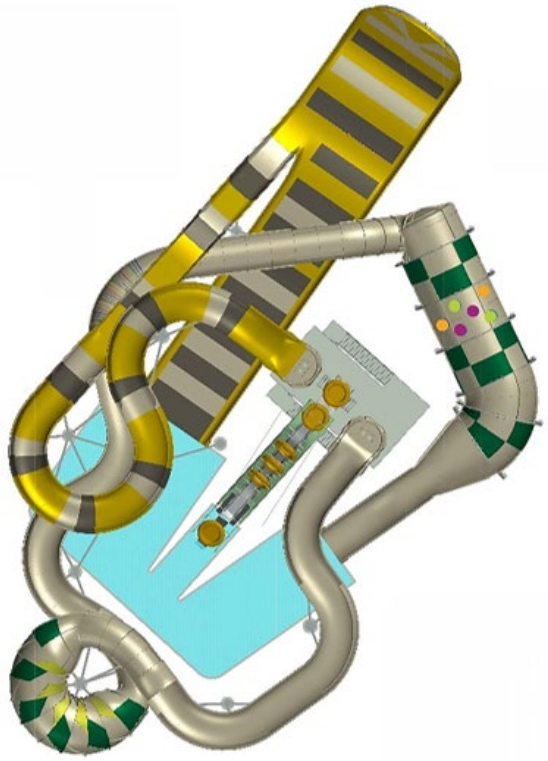
## Features



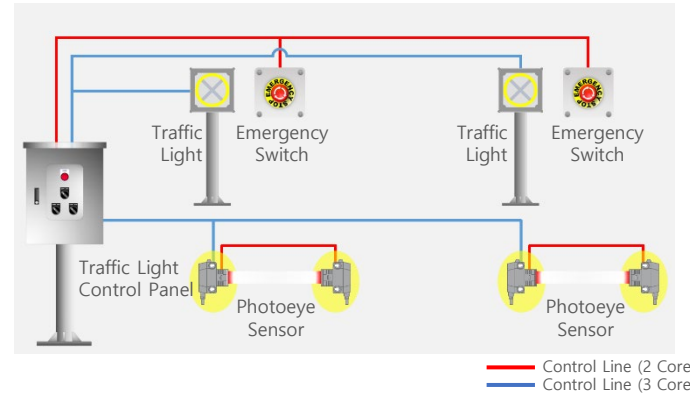
1. Supply Power : 3Phase, 380V, 50/60Hz
2. Enclosure Type : IEC IP 30 (CWT STANDARD)
3. Control Point : ① Pump ② Air Compressor ③ Agitator
4. The standards structure Size : 600(W) X 2350(H) X 600(D)

# Traffic Light System

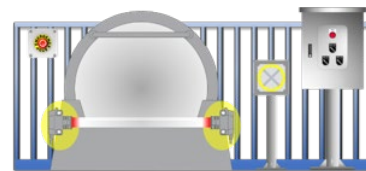
## Appearance



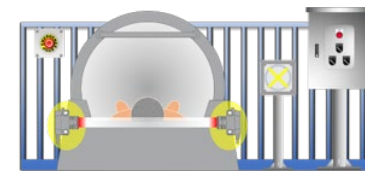
## Features



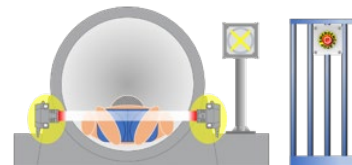
Traffic light system monitors the occupancy status of the slide and prompts the operator via a visual cue for the safe dispatch of guests. Photo Sensors are installed at the slide's entry and exit to monitor guests entering and exiting the slide.



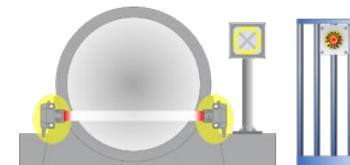
[Before Entry]  
Sensor Detection : X  
O.X Display : O



[After Entry]  
Sensor Detection : O  
O.X Display : X



[Before Landing]  
Sensor Detection : O  
O.X Display : X



[After Landing]  
Sensor Detection : X  
O.X Display : O





**Intelligent Pump-room Management System**  
**The Latest High-Tech Solution to**  
**Water Treatment Automation**

# IPM SYSTEM

Is our state-of-the-art solution that automatically remote-controls and monitors the equipment inside the mechanical room for efficient management of your venue.

**I**ntelligent  
**P**ump-room  
**M**anagement

# IPM SYSTEM

---

## CORE FUNCTIONS

- Monitor waterpark equipment operation
  - Monitor operation status of Water treatment system
  - Monitor operation status of Slide and attraction
  - Monitor river control system status
  - Monitor traffic light system status
  - Monitor alarms and event status
  - Monitor power consumption
- 

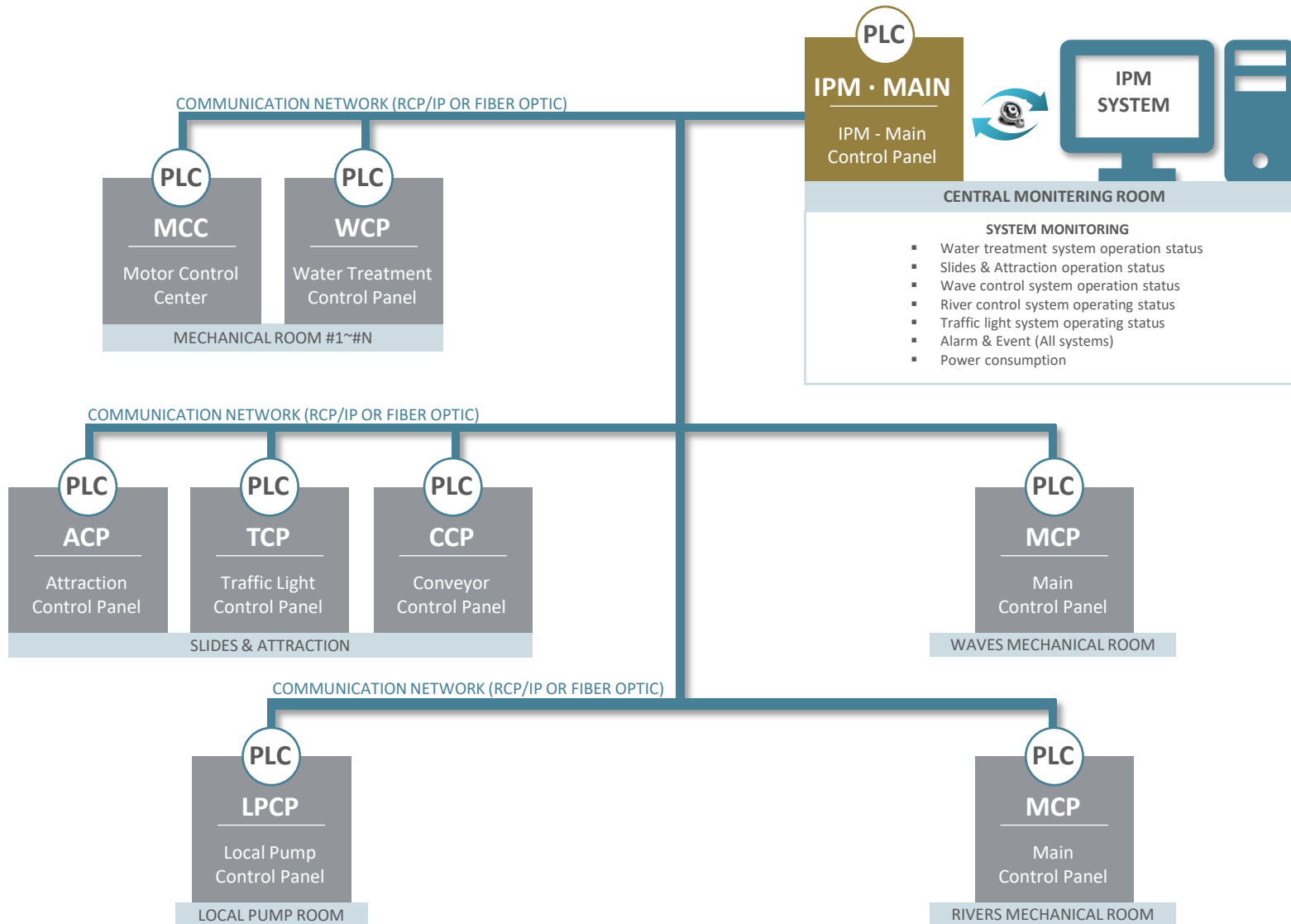
## KEY FEATURES

- Monitors the park capacity and establishes an efficient equipment operation level
  - Customizable operation presets for varying demands
  - Ability to collect analytical data of the overall park operation
  - Ability to control the outputs of individual pumps
  - System can automatically reduce power usage of unused areas
  - Designed with flexibility to work along existing control systems
- 

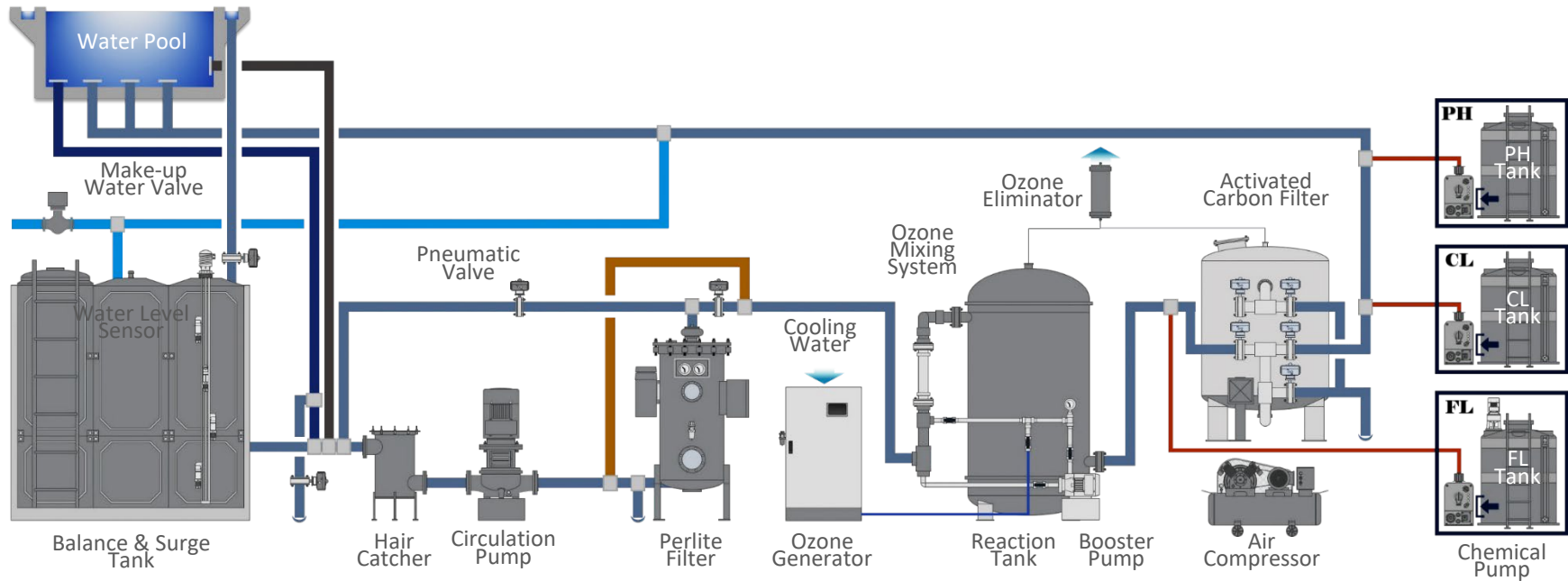
## BENEFITS

Save on energy, water, and consumable costs  
Extend lifecycle of equipment  
Reduce maintenance and overhaul cost  
Require less labor to manage system and operation

# IPM (Intelligent Pump room Management) SYSTEM



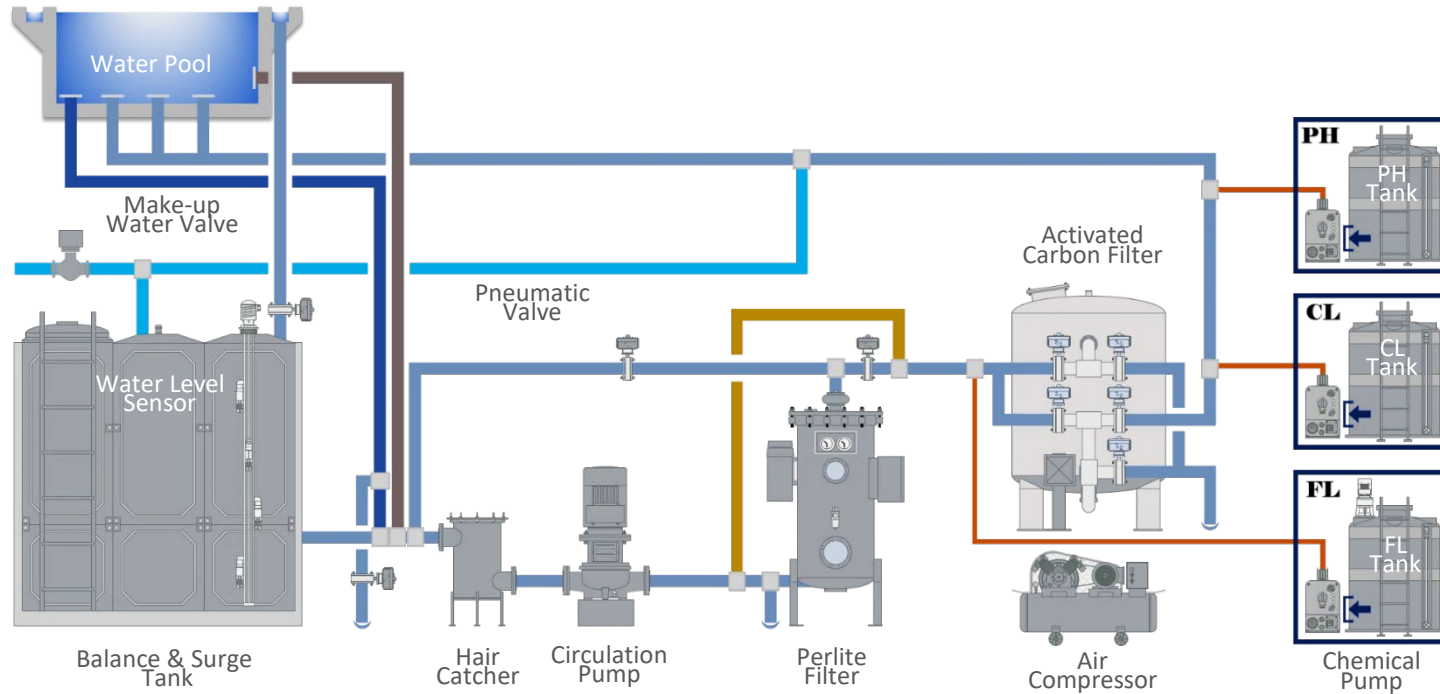
# Water Treatment System – 1



## Perlite Filter + Ozone System + Activated Carbon Filter

System to produce the highest quality pool water

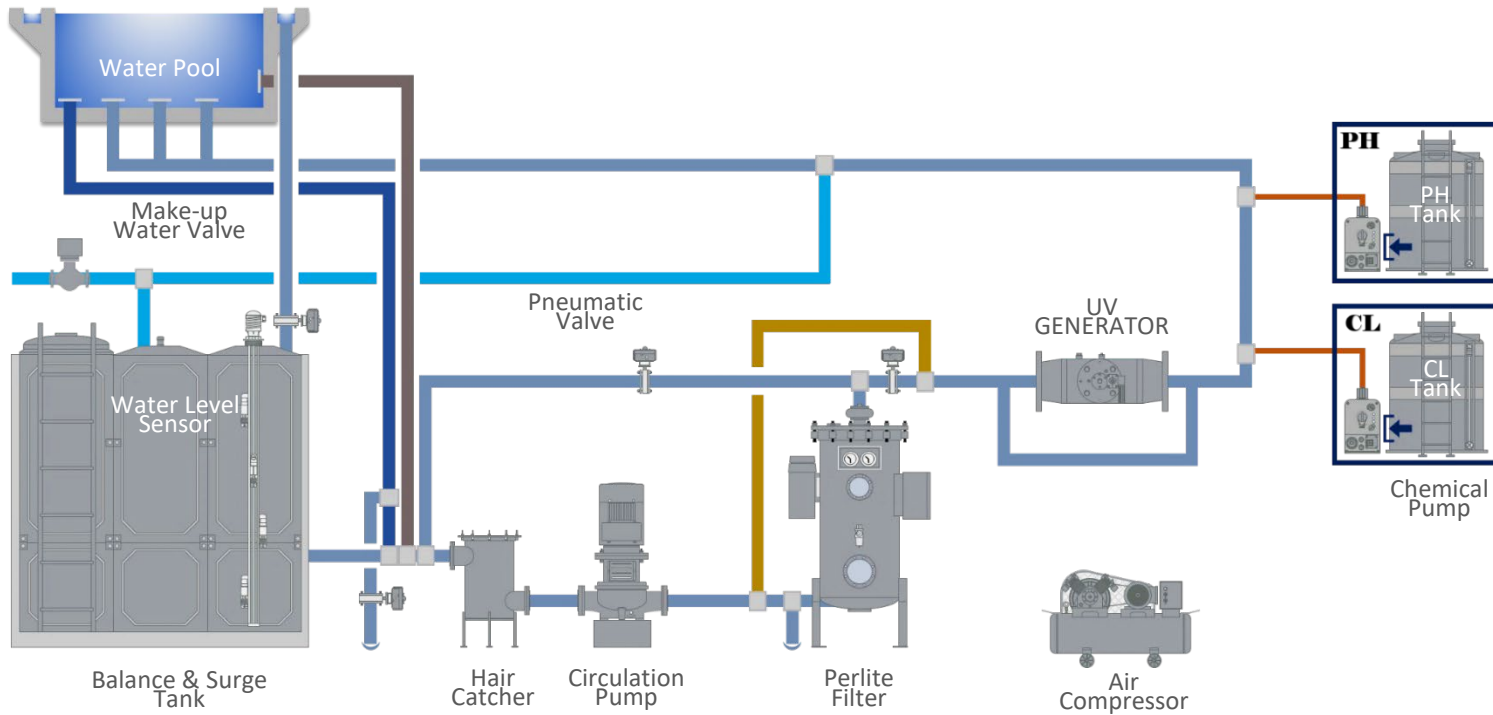
## Water Treatment System – 2



### Perlite Filter + Activated Carbon Filter

System efficient in removing organic matters to produce low turbidity

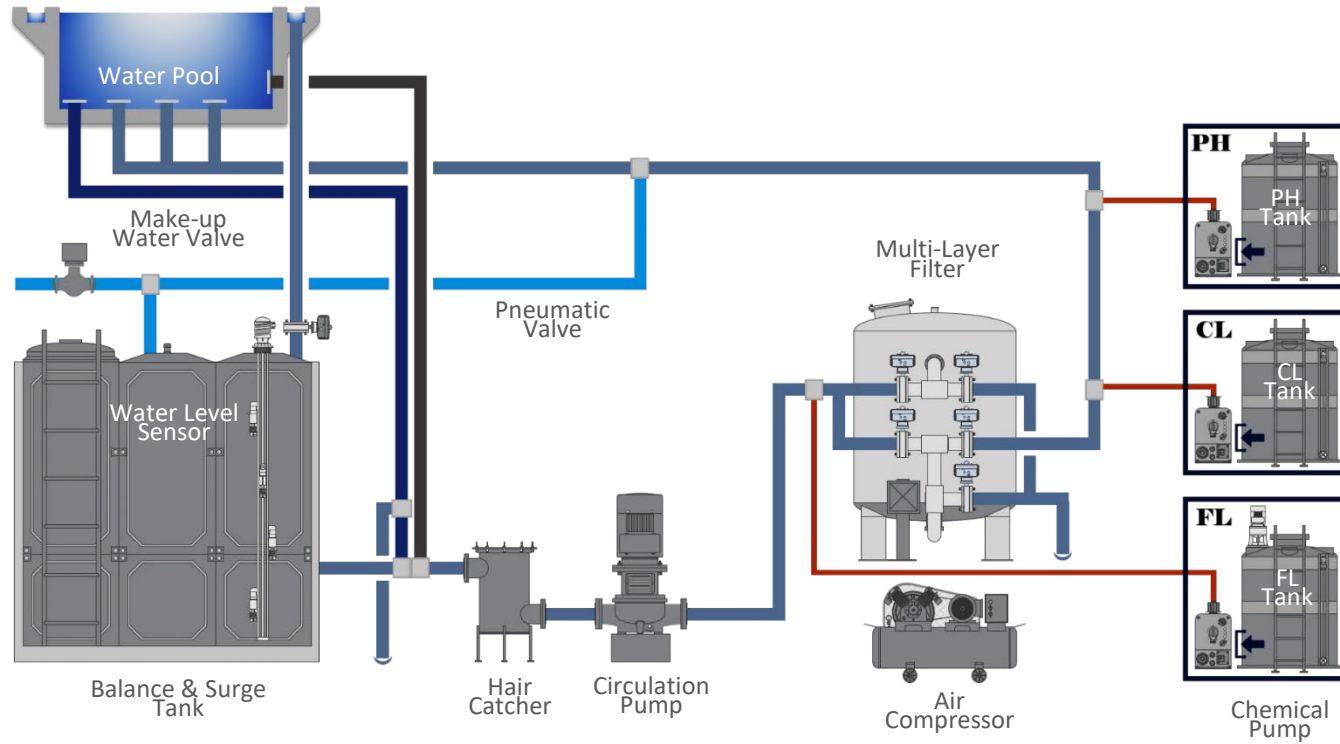
# Water Treatment System – 3



## Perlite Filter + UV System

Systems designed for sterilization and low turbidity

# Water Treatment System – 4

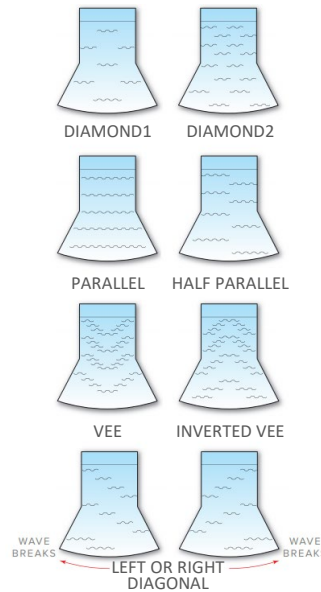


## Multi-Layer Filter

Economical system using multi-layer filters only



# Attraction – Pneumatic Wave Pool



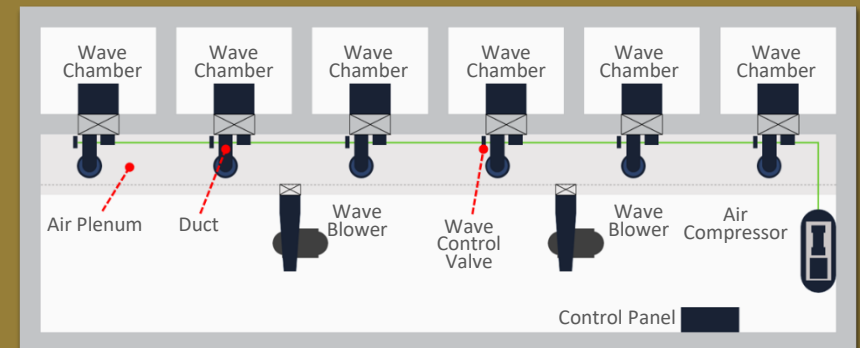
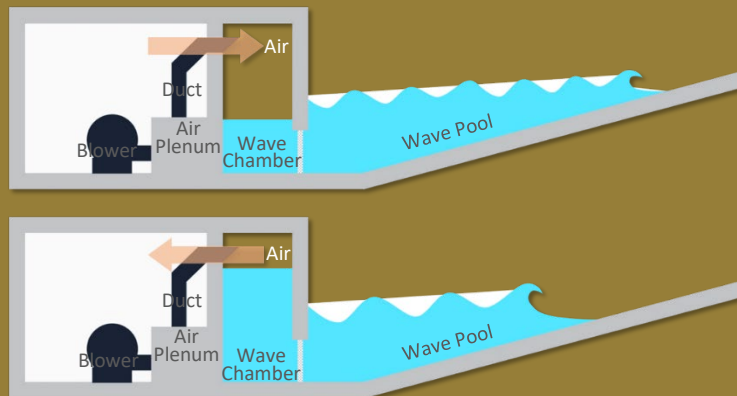
Family Wave Pool is a waterpark attraction utilizing a pneumatic system. It uses a wave blower to inject air into the wave chamber, and the force of the air pressure moves the water in the chamber into the pool to generate waves. Wave patterns are generated by programmatic configurations of the system and its blowers.

## ■ Integrated Monitoring

1. Monitoring of operation status
2. Monitoring of alarms and events

## ■ Equipment Components

1. Control Panel
2. Wave Blower
3. Air Compressor
4. Wave Control Valve

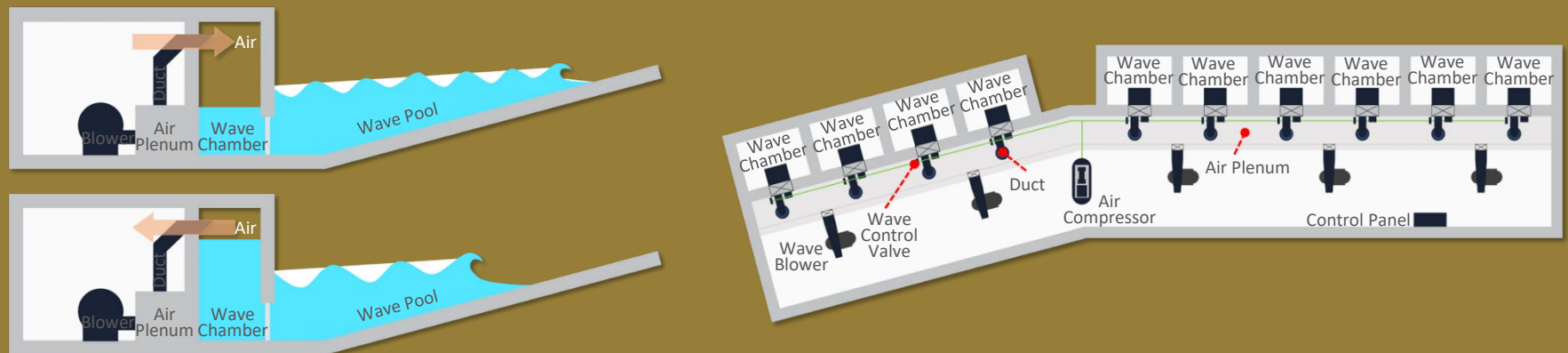


# Attraction – Dual Wave Pool

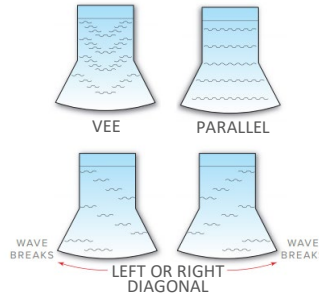


Dual Wave Pool is a waterpark attraction that can be operated flexibly using two pools. It employs the same pneumatic system as the Family Wave Pool.

- **Integrated Monitoring**
  1. Monitoring of operation status
  2. Monitoring of alarms and events
  
- **Equipment Components**
  1. Control Panel
  2. Wave Blower
  3. Air Compressor
  4. Wave Control Valve



# Attraction – Surf Wave Pool



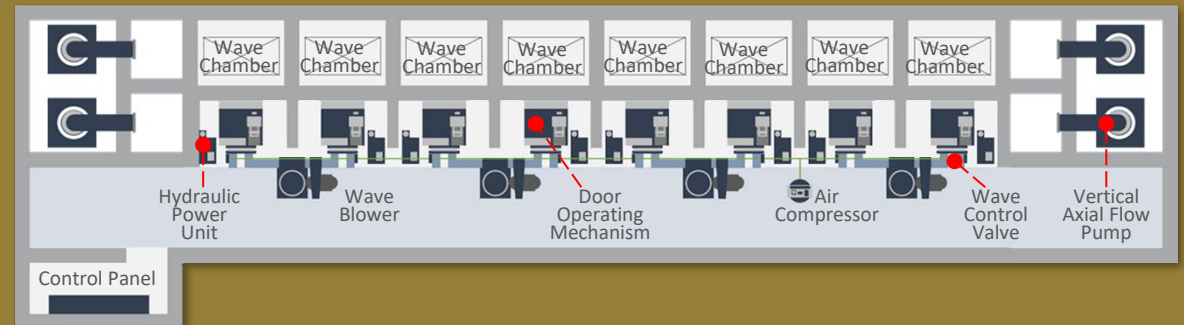
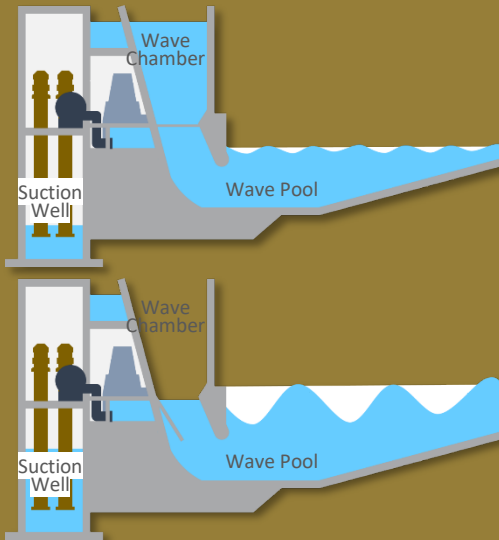
Surf Wave Pool is a waterpark attraction that combines both pneumatic and hydraulic systems. Vertical axial flow pump will draw water from the suction well and store in a wave chamber. Hydraulic system controls the wave chamber to release the water in the wave chamber to generate waves. Wave patterns are generated by programmatic configurations of the hydraulic power units.

## ■ Integrated Monitoring

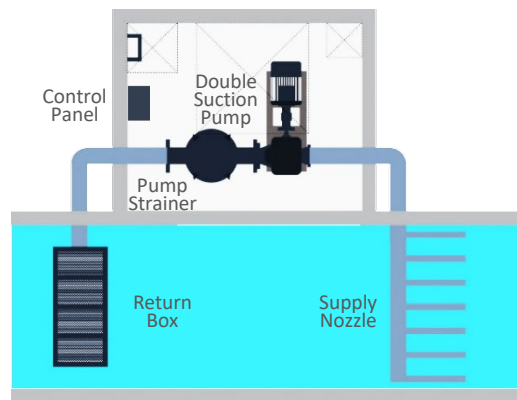
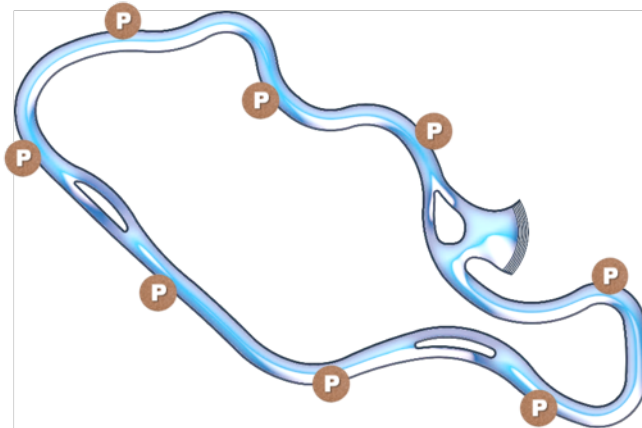
1. Monitoring of operation status
2. Monitoring of alarms and events

## ■ Equipment Components

- |                       |                             |
|-----------------------|-----------------------------|
| 1. Control Panel      | 5. Hydraulic Power Unit     |
| 2. Wave Blower        | 6. Door Operating Mechanism |
| 3. Air Compressor     | 7. Vertical Axial Flow Pump |
| 4. Wave Control Valve |                             |



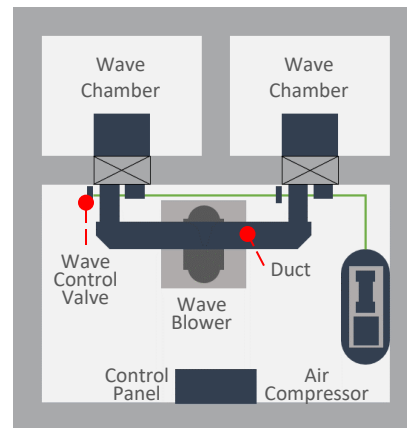
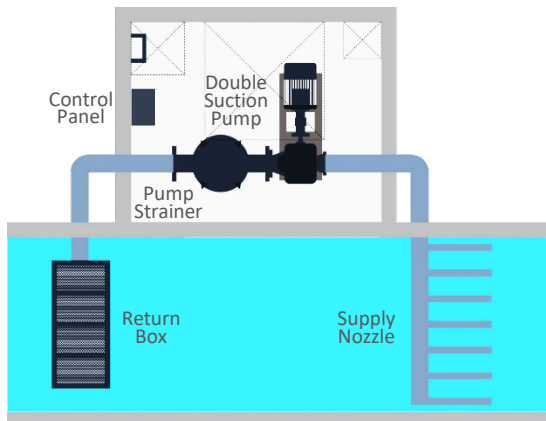
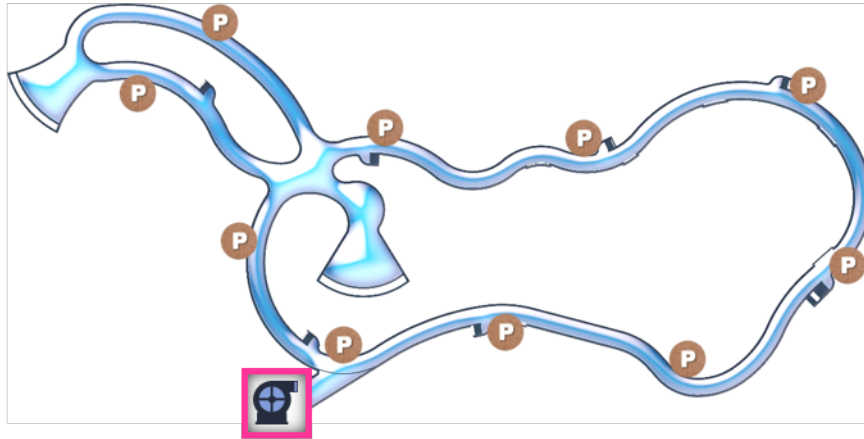
# Attraction – Lazy River



The most basic system of the river systems, the local pump-room is placed along side the shape and direction of the river. In each local pump room, the water is taken in through the return box and discharged through the nozzles. Double suction pumps will produce continuous water flow.

- **Integrated Monitoring**
  1. Monitoring of operation status
  2. Monitoring of alarms and events
  
- **Equipment Components**
  1. Control Panel
  2. Double Suction Pump
  3. Return Box
  4. Supply Nozzle

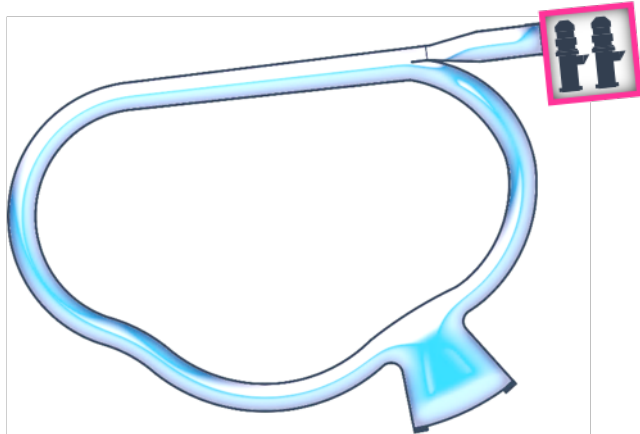
# Attraction – Wave River



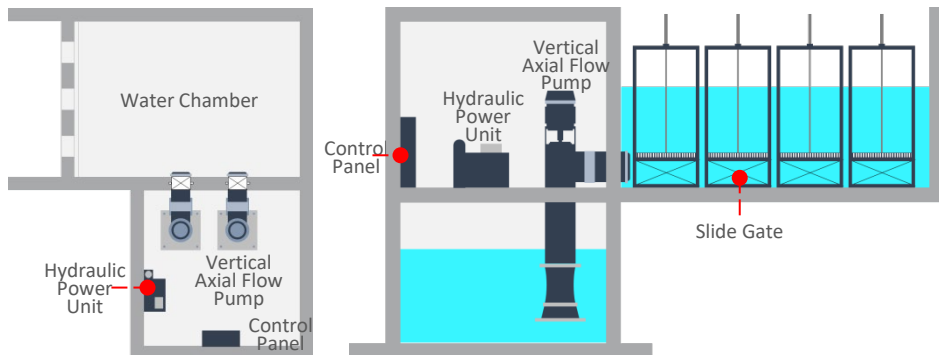
Wave River is a waterpark attraction that combines the pneumatic system with the Lazy River system, adding wave mechanical room to generate waves in specific sections. Area with the wave mechanical room will have gentle waves generated by the wave blower and the pneumatic system.

- **Integrated Monitoring**
  1. Monitoring of operation status
  2. Monitoring of alarms and events
- **Equipment Components**
  1. Control Panel
  2. Wave Blower
  3. Air Compressor
  4. Wave Control Valve

# Attraction – Extreme River



Extreme River is a waterpark attraction designed using a vertical axial flow pump to store water into a gated chamber and releases it when the gates are opened to create a high wave and rapid flow in the river. The control panel allows to control the interval in which the gate opens and closes by configuring the hydraulics system.



- **Integrated Monitoring**
  1. Monitoring of operation status
  2. Monitoring of alarms and events
- **Equipment Components**
  1. Control Panel
  2. Vertical Axial Flow Pump
  3. Hydraulic Power Unit
  4. Slide Gate

# CLEAR WATER TECHNOLOGY

## ARCHI / THEME

- Director of Design
- Architectural Engineer
- Theme Designer

## M.E.P

- Director of M.E.P Engineering
- Water Treatment Engineer
- Mechanical Engineer
- Electrical Engineer

## SUPERVISION

- Director of Construction Management
- Supervisor
- Construction Engineer
- Survey Engineer
- Steel Quality Assurance
- Maintenance Service

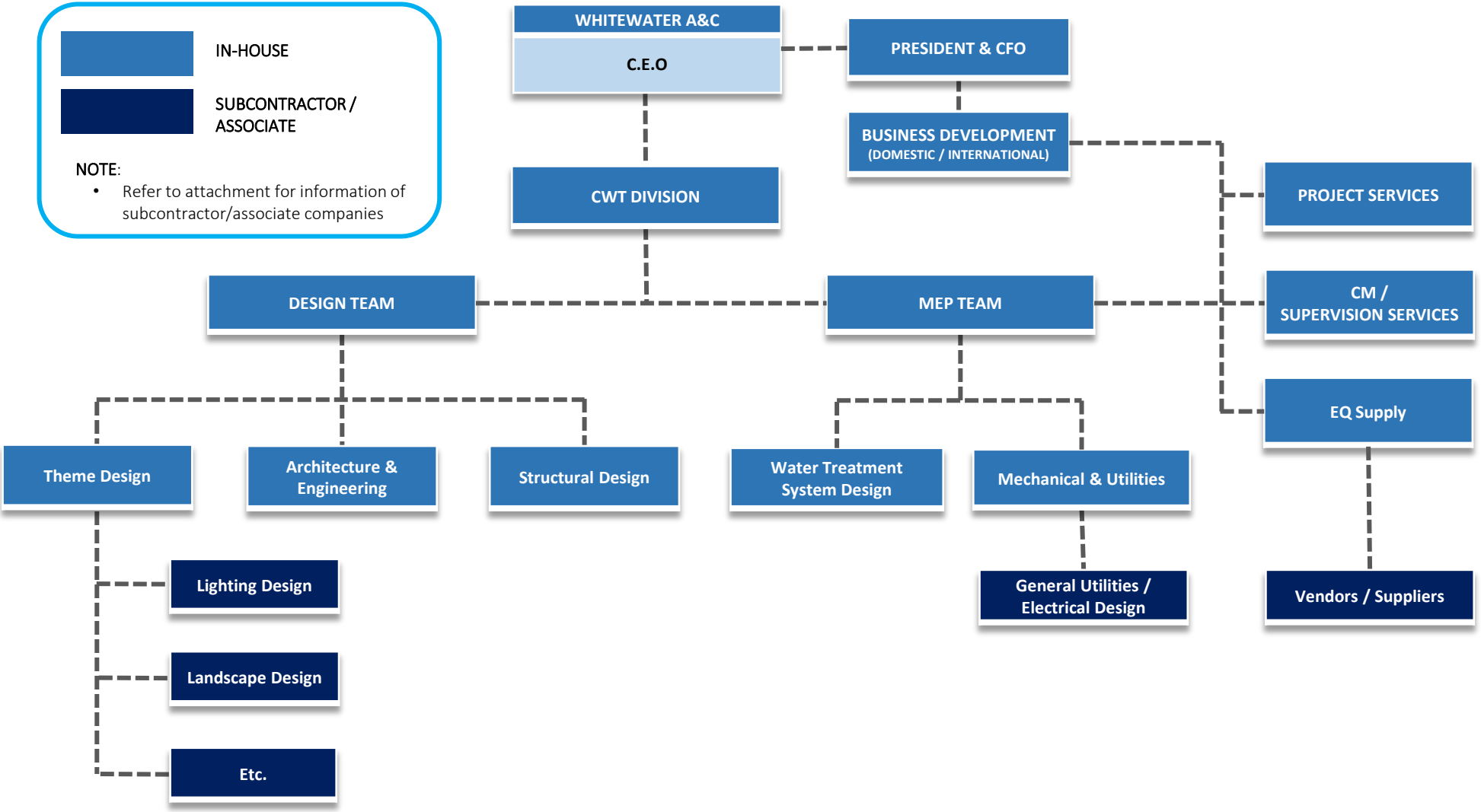
# Organization Structure

**Legend:**

- IN-HOUSE
- SUBCONTRACTOR / ASSOCIATE

**NOTE:**

- Refer to attachment for information of subcontractor/associate companies







# CLEAR WATER TECHNOLOGY

Architectural Design / Theme Design / Attraction Installation & Supervision  
Architectural Engineering / M.E.P. Engineering / Equipment Installation & Supervision

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