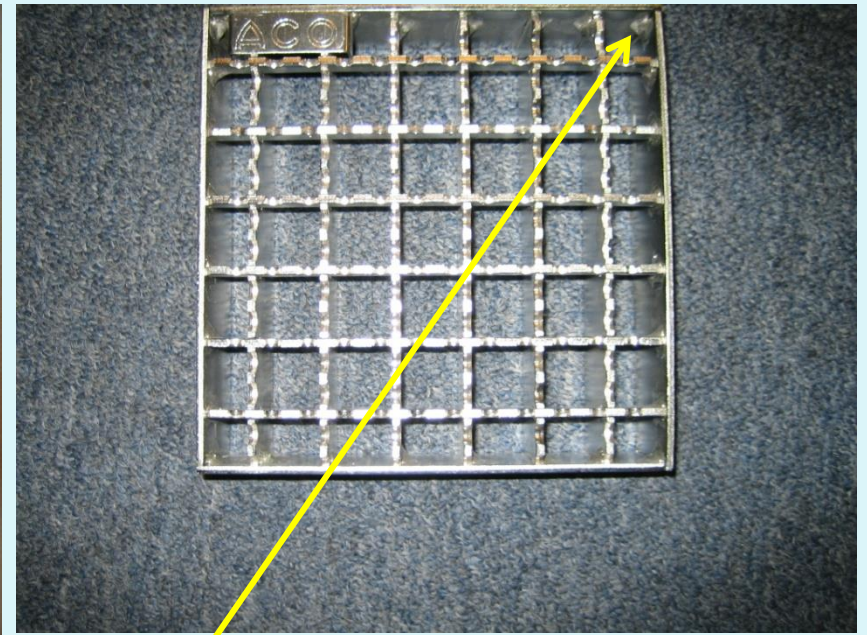
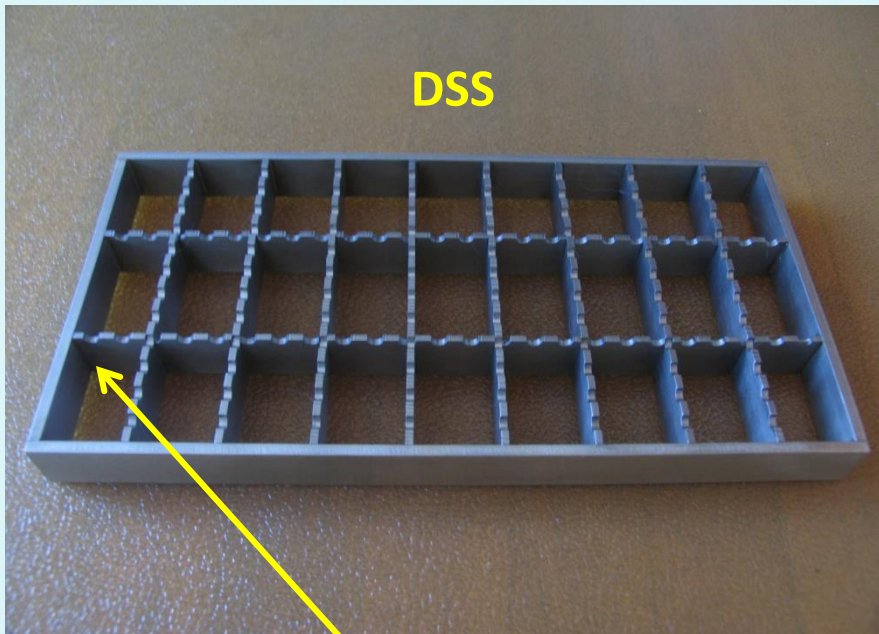


# DRAINAGE SYSTEM SOLUTION





### Technological Differences

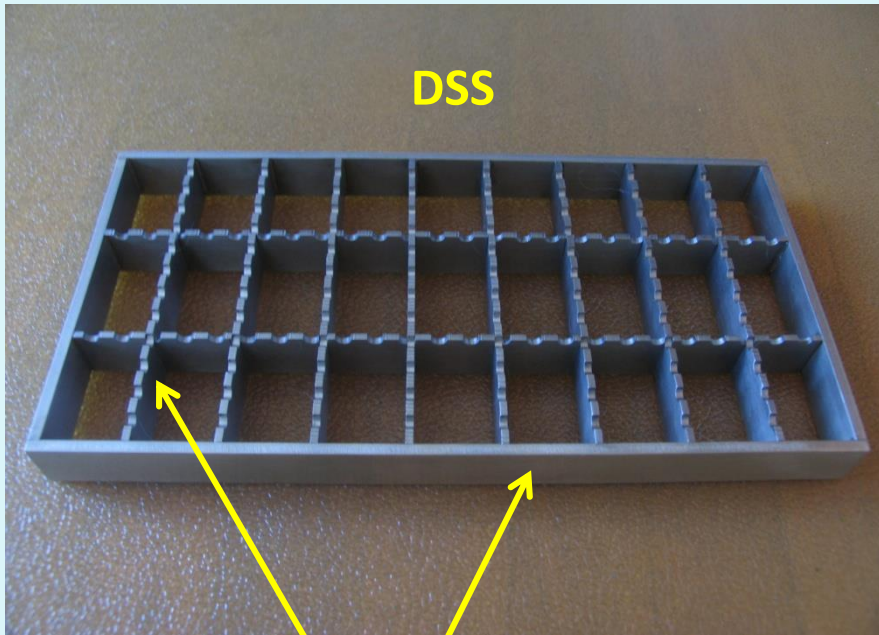
**A** Using the state-of-the-art Arc-Welding technology, which creates a smooth and beautiful surface and appearance in every part of the grating.

Arc-welding can sustain the abrupt and forceful hit/drop when being taken out for cleaning / washing.

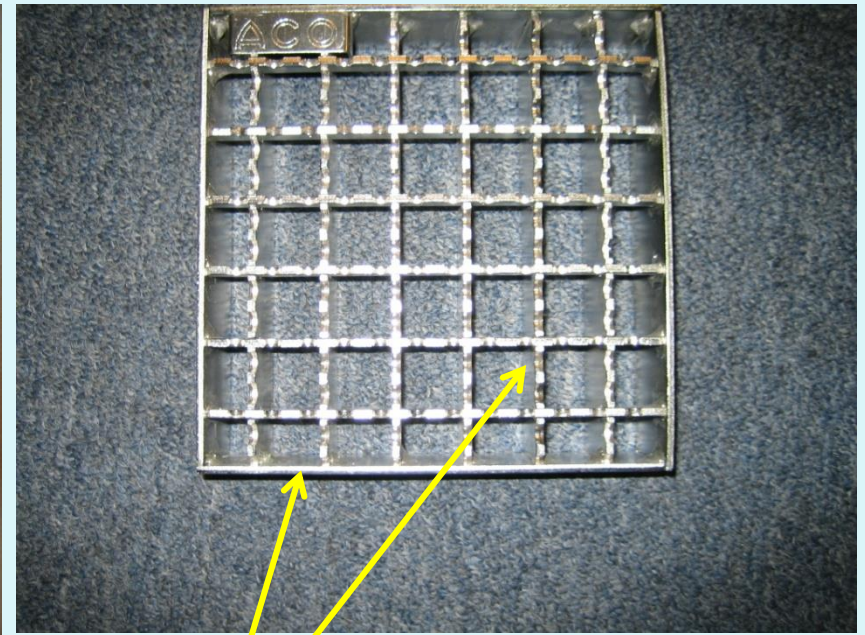
**A** Using spot-welding, which leaves a big welding spot (a rough surface) outside the corner of each slot, leading to a possible collection of dirt and unsanitary materials.

Spot-welding could easily break once being dropped or hit abruptly and forcibly.





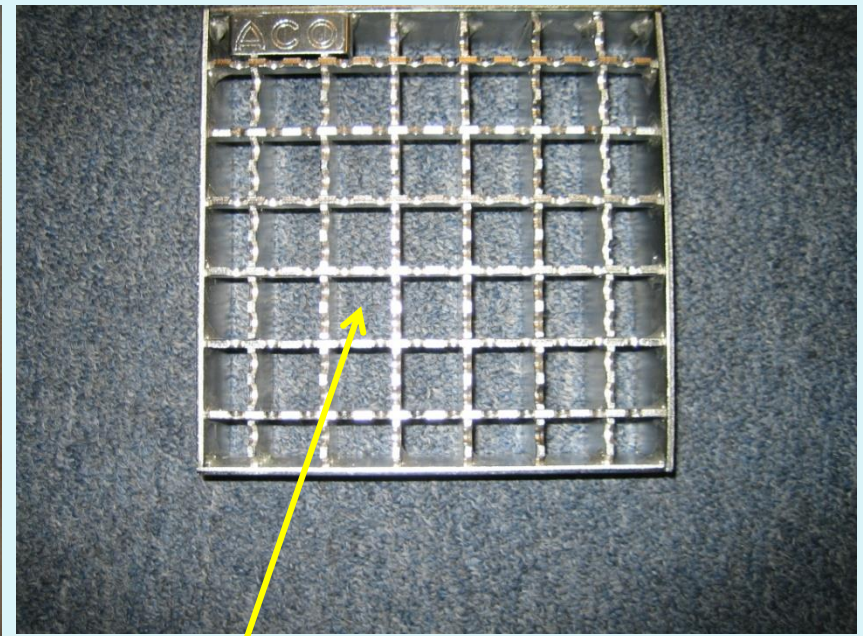
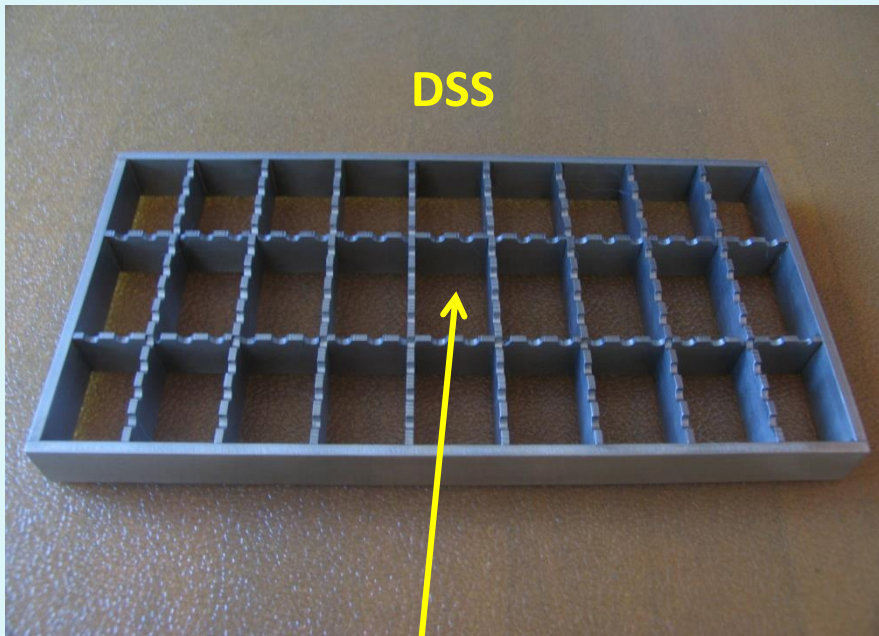
**DSS**



## Structural Strength and Durability

**B** Truly Heavy-Duty & Sustainable! Using 5mm thick #304 stainless steel for the outside ring of the grating and 3mm thick #304 stainless steel for the interior sections of the grating

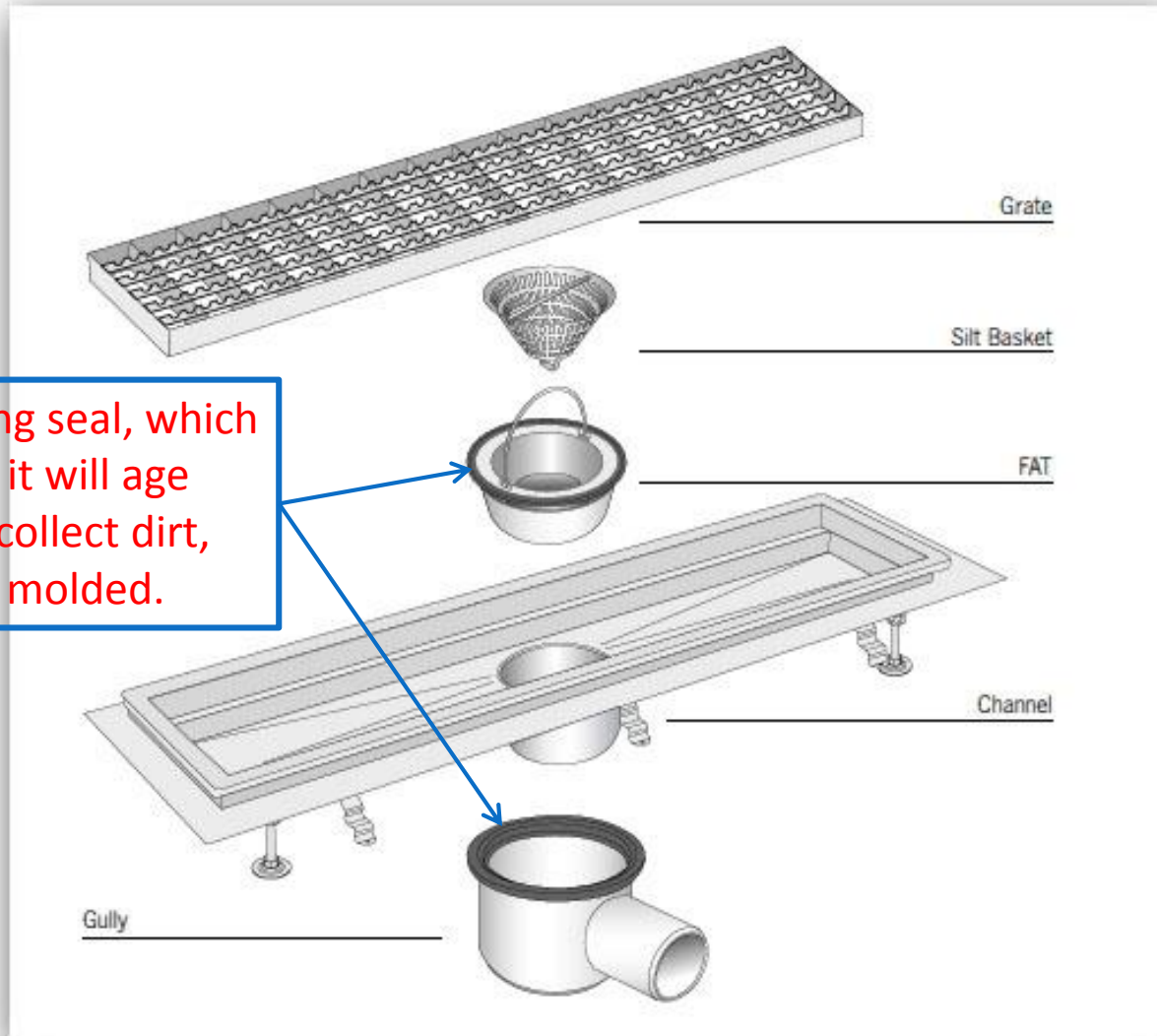
**B** Using 4mm thick #304 stainless steel for the outside ring of the grating and 2mm thick #304 stainless steel for the interior sections of the grating



|                                     |                                                                                                                                      |                                                                                                                                  |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Structural Difference</b></p> | <p><b>C</b> Slot sizes are in rectangular shape, which would allow easy cleaning and hosing down any dirt and unwanted materials</p> | <p><b>C</b> Slot sizes are in a small square shape, which would make cleaning a bit difficult and hard to detect dirty spots</p> |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|



# ACO Drainage System



Using rubber ring seal, which is unsanitary as it will age and break; will collect dirt, grease, and get molded.

## Blucher (Denmark) Drainage System

Also using rubber ring seal, which is unsanitary as it will age and break; will collect dirt, grease and get molded. Worst of all, Blucher's drainage is so small and limited in size/diameter that it cannot accommodate high / large water outflow

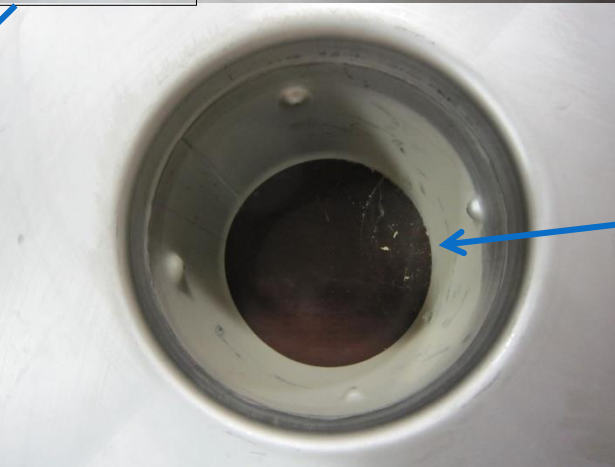
Limited water  
outflow



Rubber ring seal

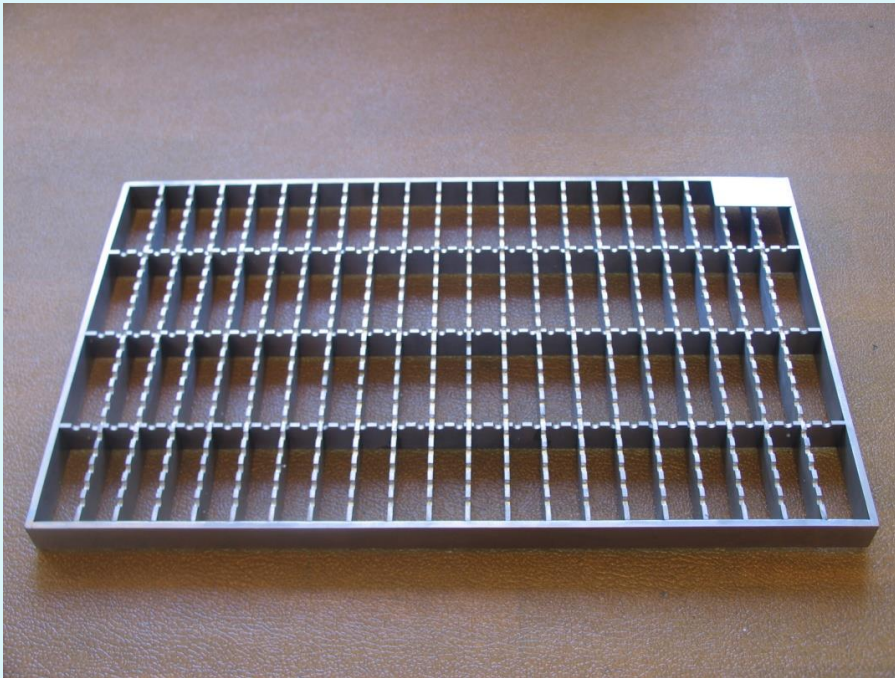


Narrow  
drain outlet





## DSS Gratings



# Specifications on Heavy-Duty Gratings

*(slip-resistant on one side & plain on the other)*

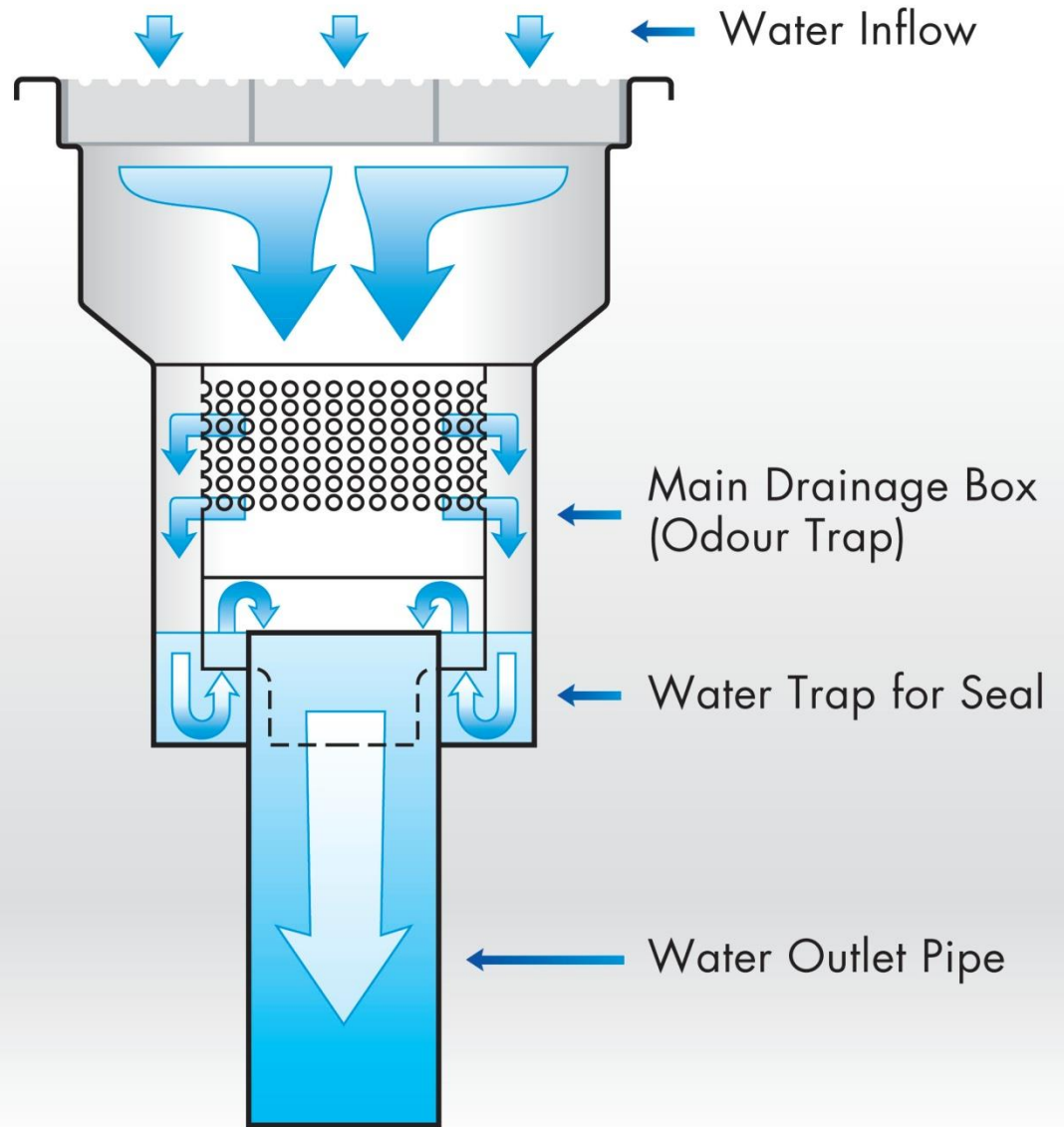
- Stainless Steel Grade #304;
- Hairline finishing;
- 5mm thick for the exterior outside ring & 3mm thick for the interior sections;
- Minimum Point Load: 150 kg per square meter

| Model Number    | Grating Dimensions             | Approximate Slot Size |
|-----------------|--------------------------------|-----------------------|
| DSG-200S        | 200mmW x 200mmL x 25mmH        | 20mmW x 60mmL         |
| DSG-300S        | 300mmW x 300mmL x 25mmH        | 20mmW x 70mmL         |
| DSG-500S        | 500mmW x 500mmL x 25mmH        | 20mmW x 75mmL         |
| DSG-600S        | 600mmW x 600mmL x 25mmH        | 20mmW x 70mmL         |
| <b>DSG-300L</b> | <b>300mmW x 500mmL x 25mmH</b> | <b>20mmW x 70mmL</b>  |

# DSS Drainage System



**Stainless Steel Silt Basket**











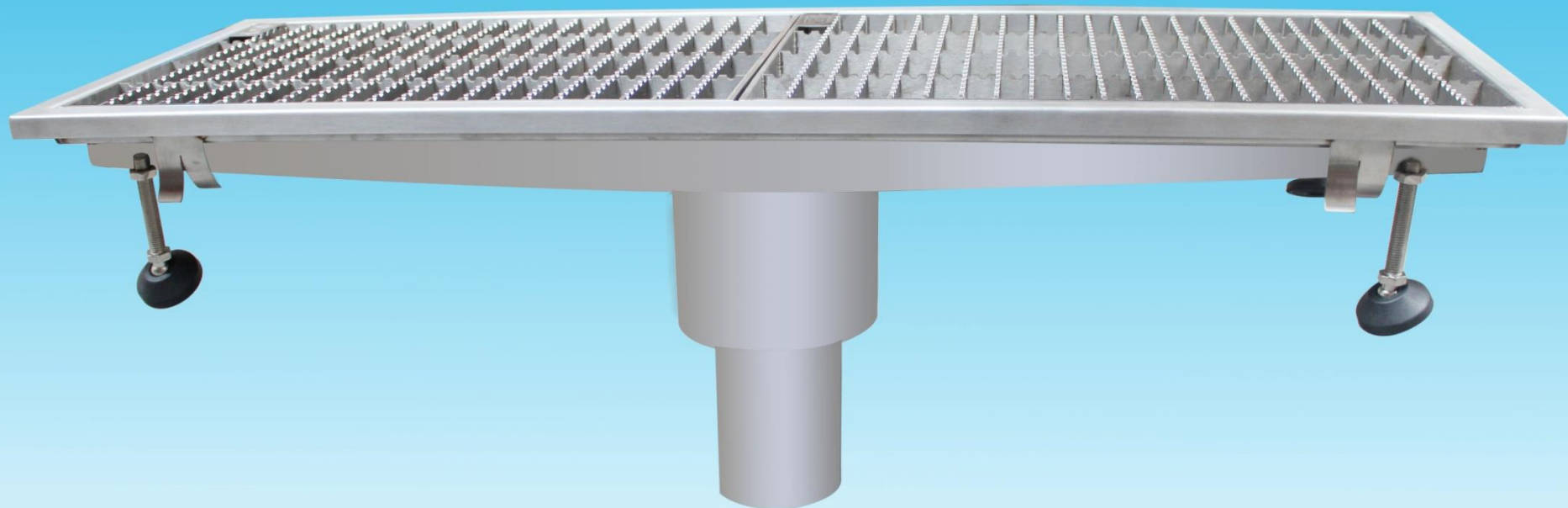
# **New Design & New Style of DSS Channels**



**A Smooth and Seamless Bottom of the Channel for  
Better Water Flow and Sanitation**



















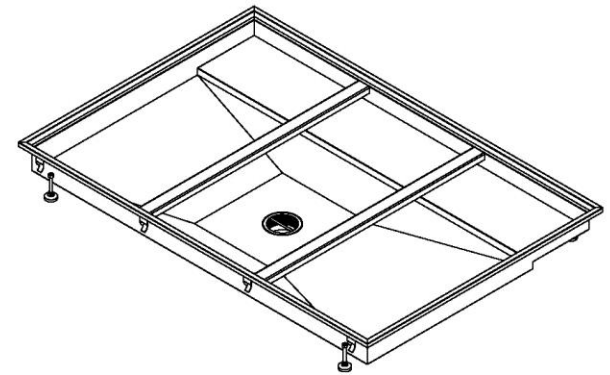
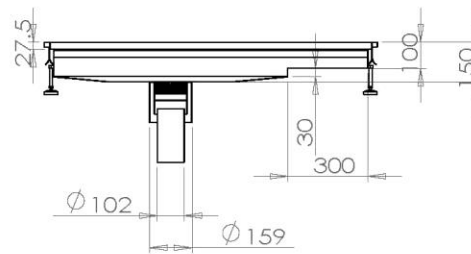
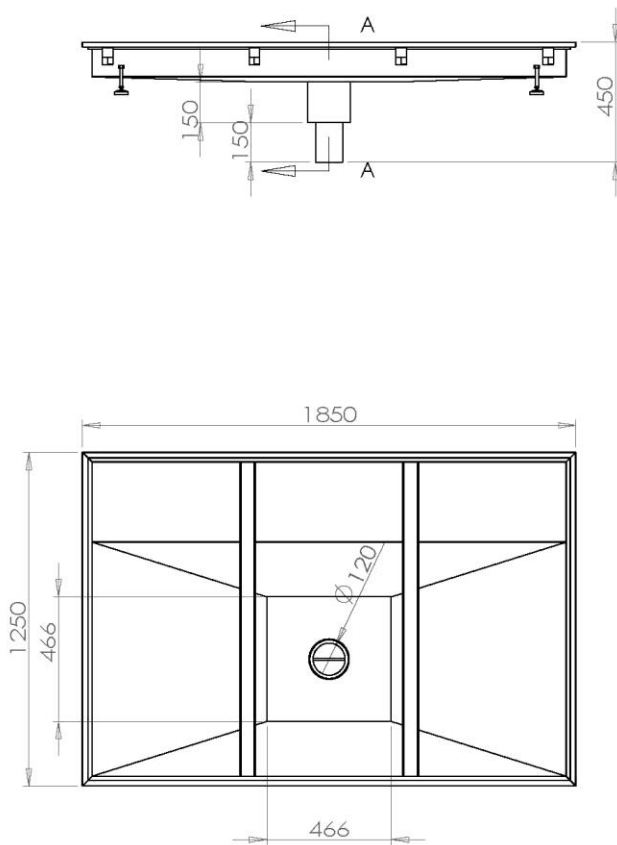


## **We can custom-make channels**

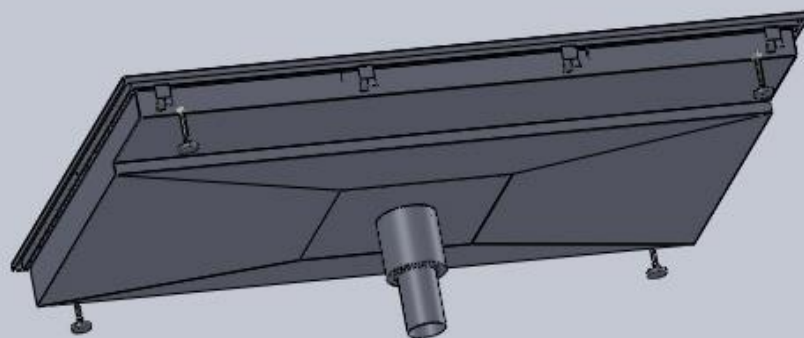
- **in any sizes,**
- **in any shapes & configurations,**
- **in any depths,**

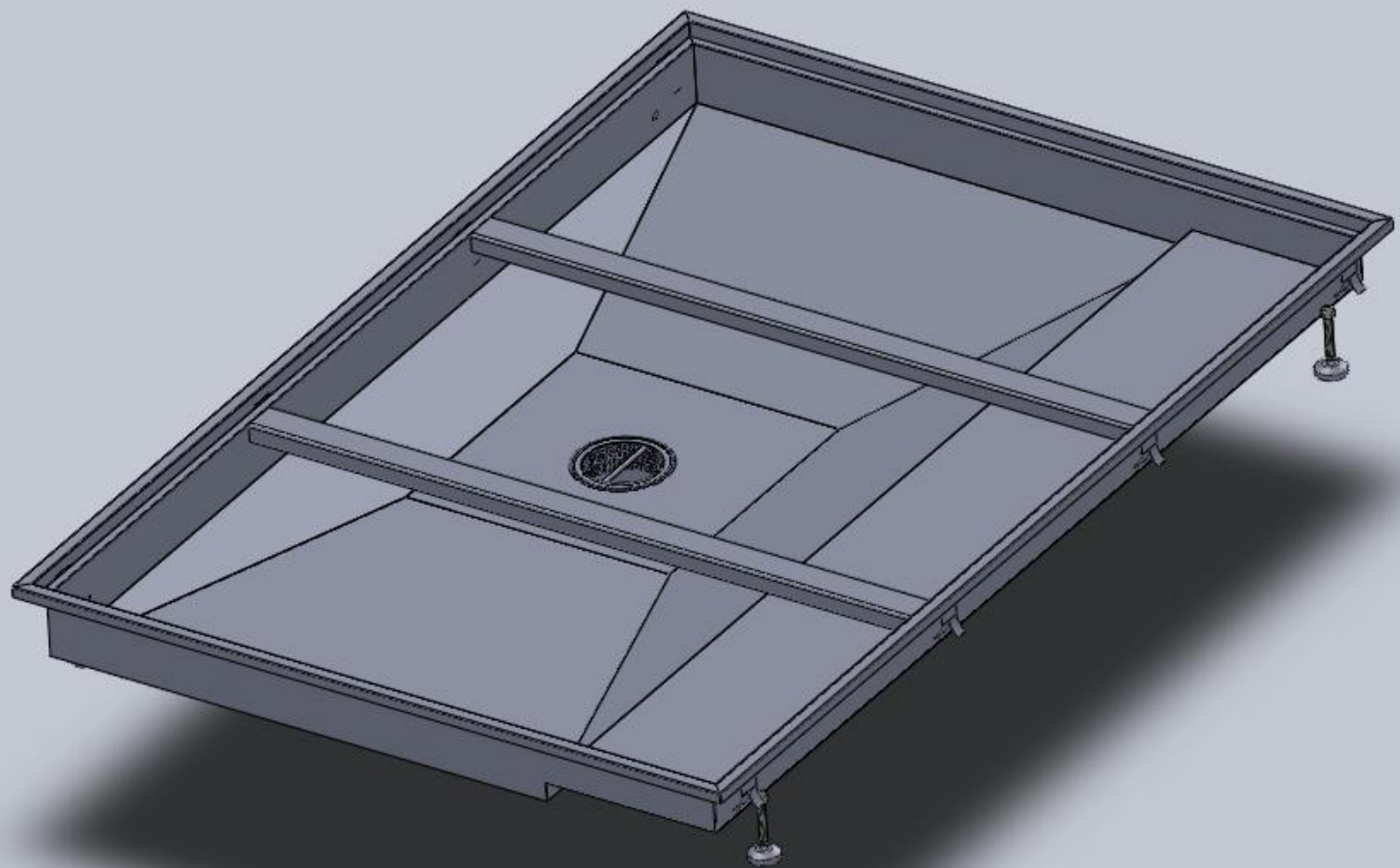
**to meet the site conditions and requirements.**

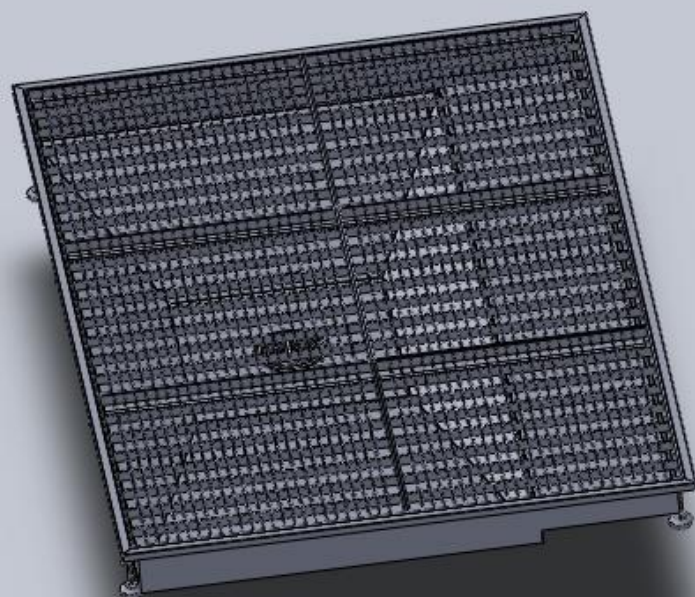
# Special Channel Design for Park Hyatt, Chennai, India



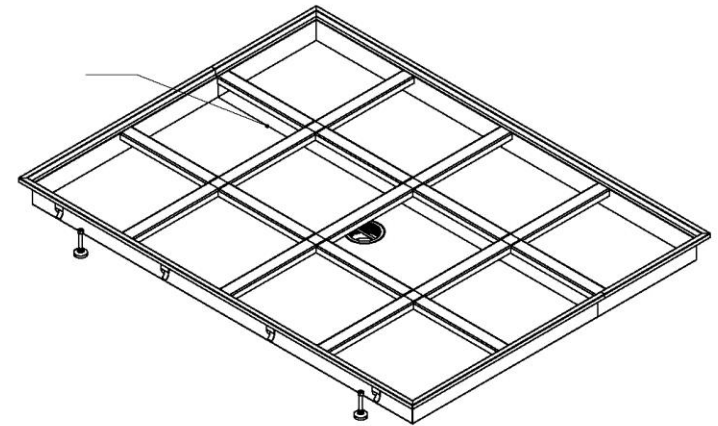
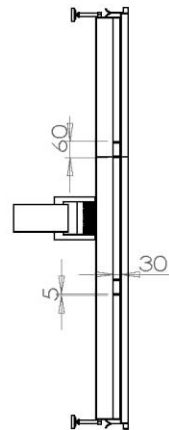
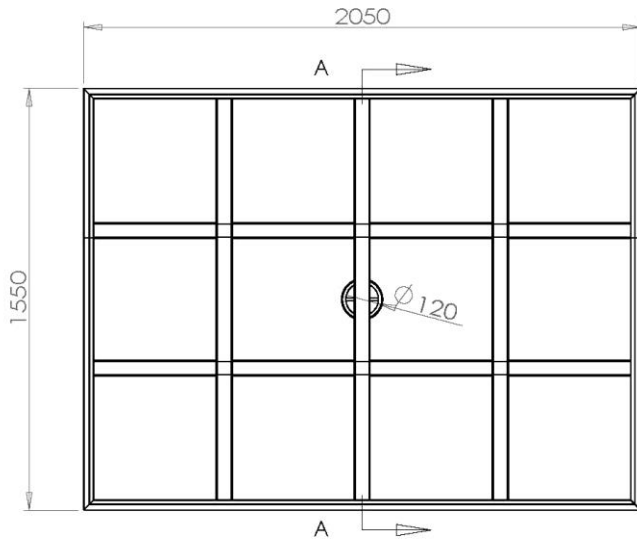
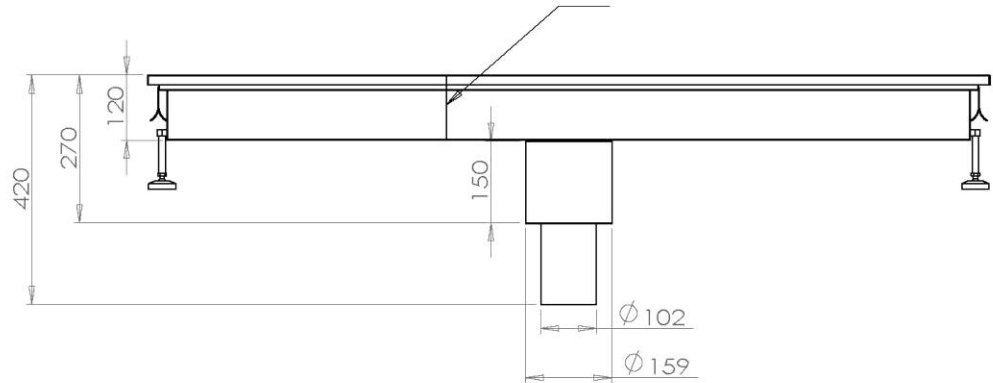
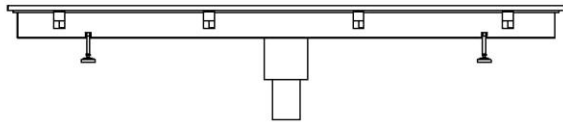




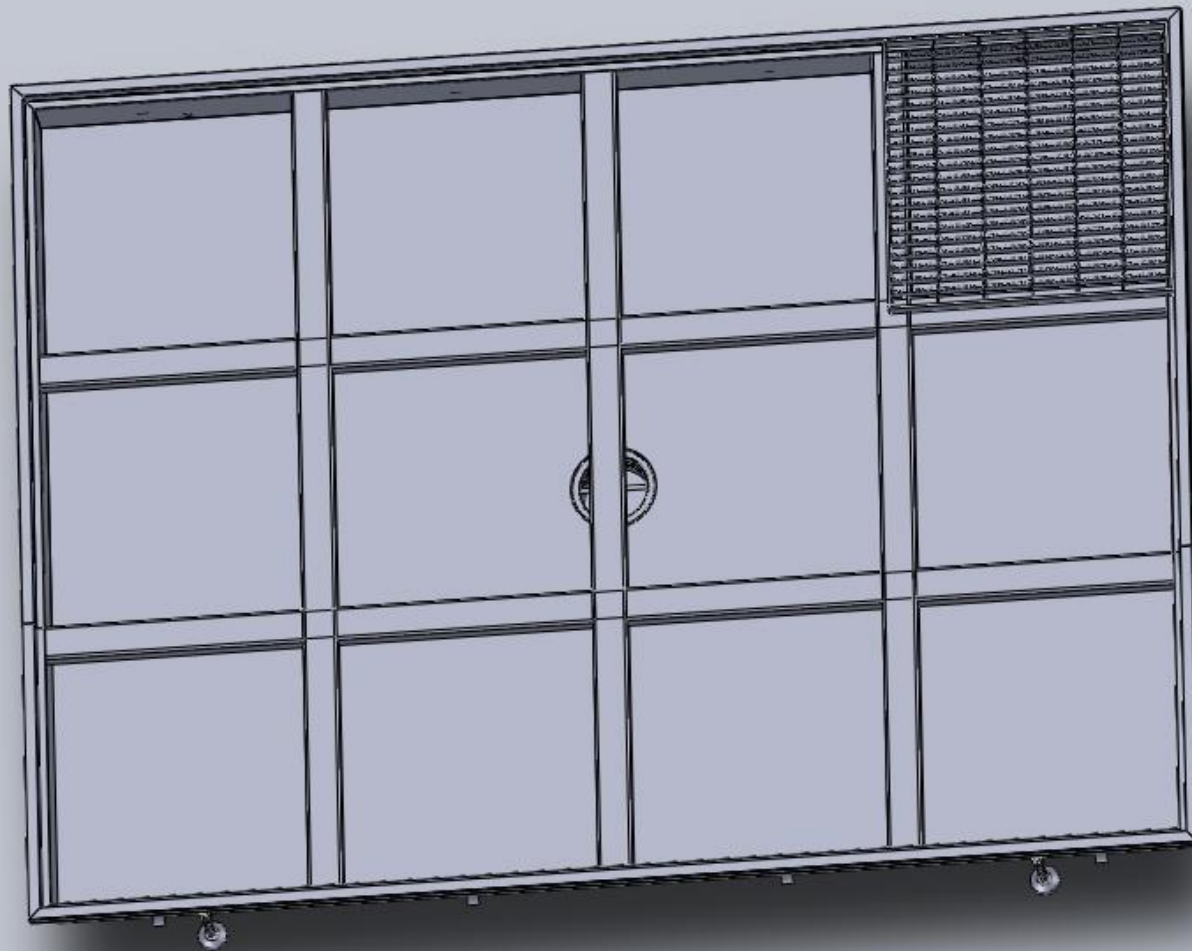


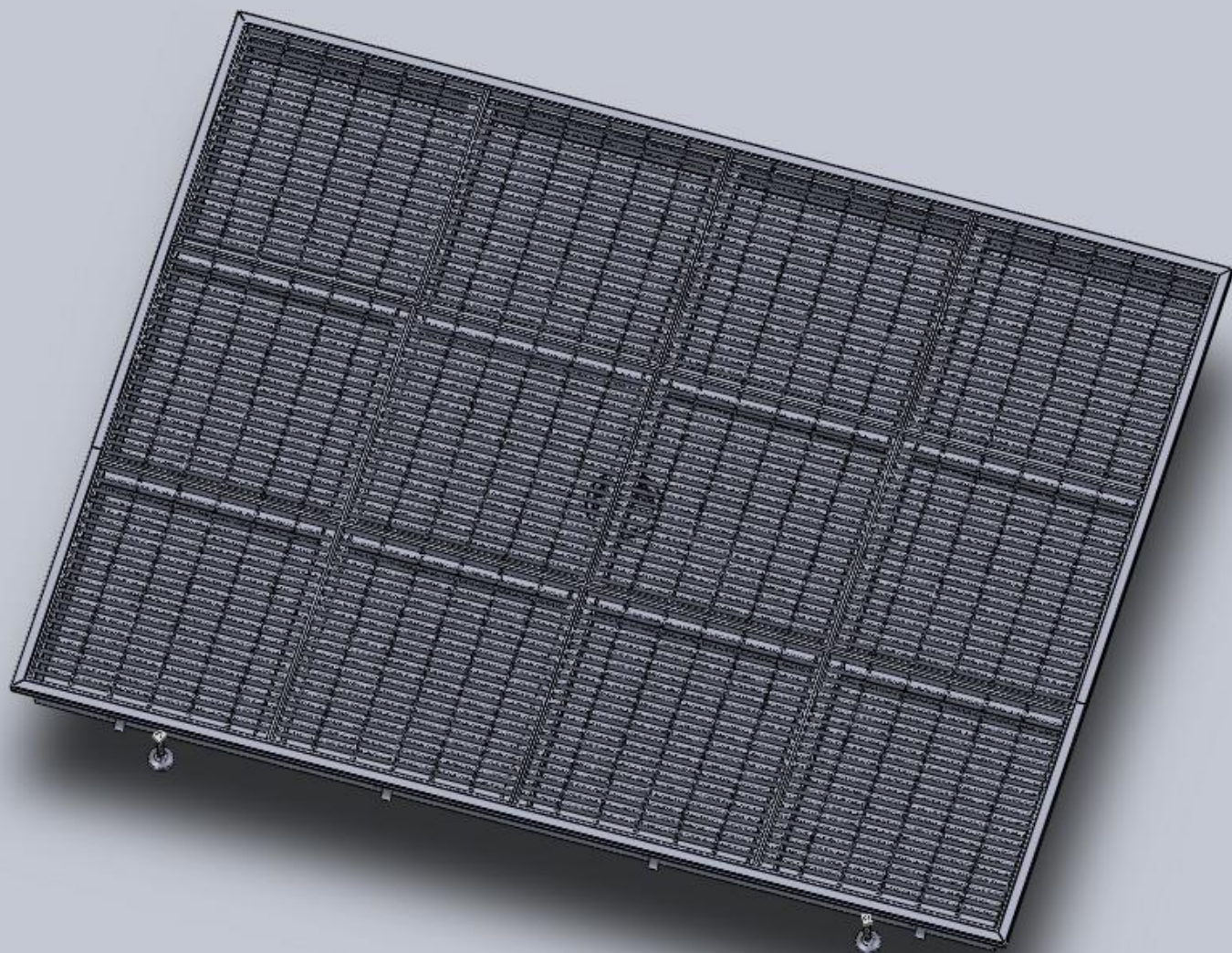


# Special Channel Design for Grand Hyatt, Kuala Lumpur, Malaysia

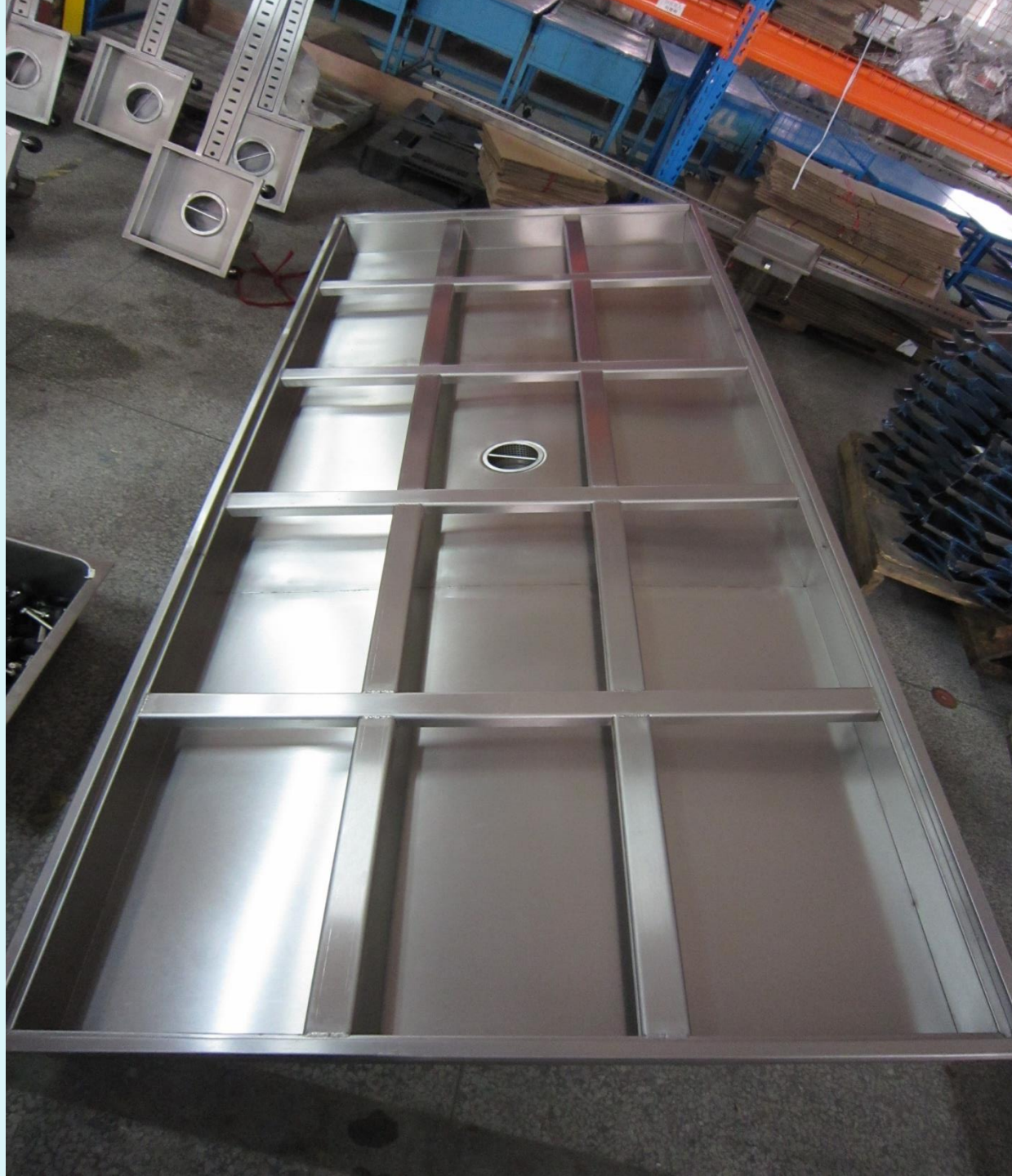


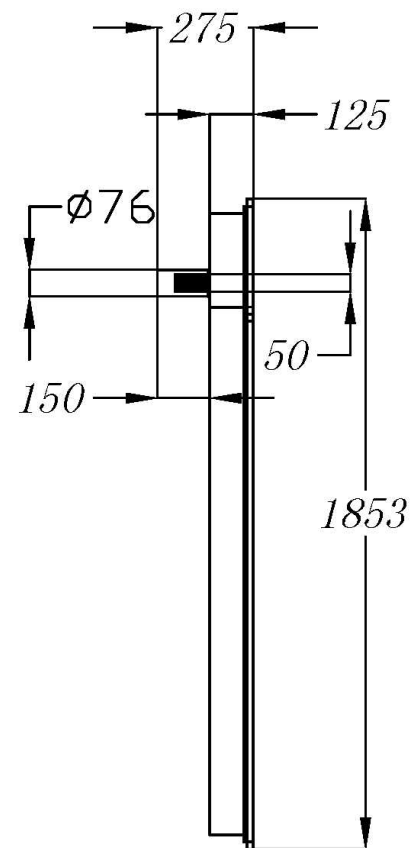
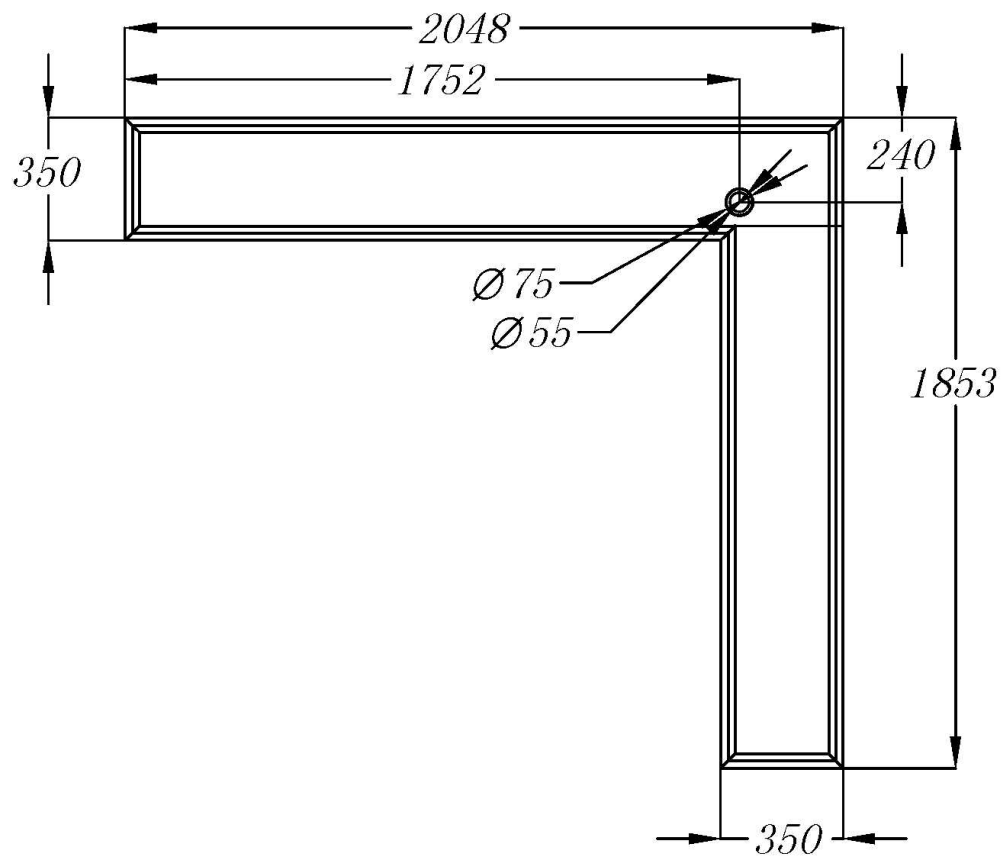
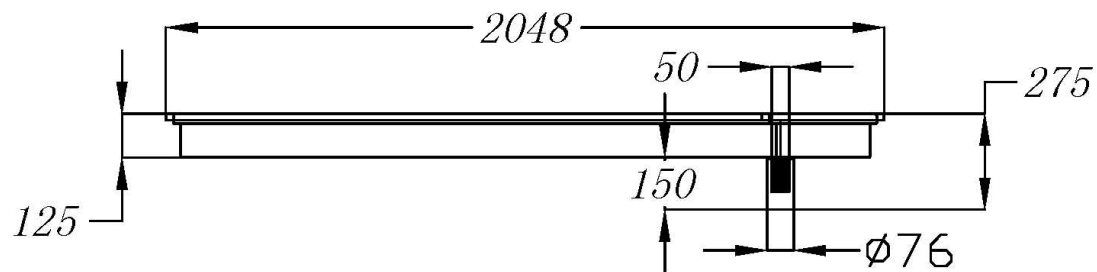




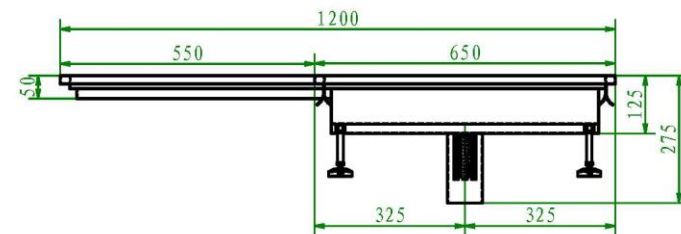
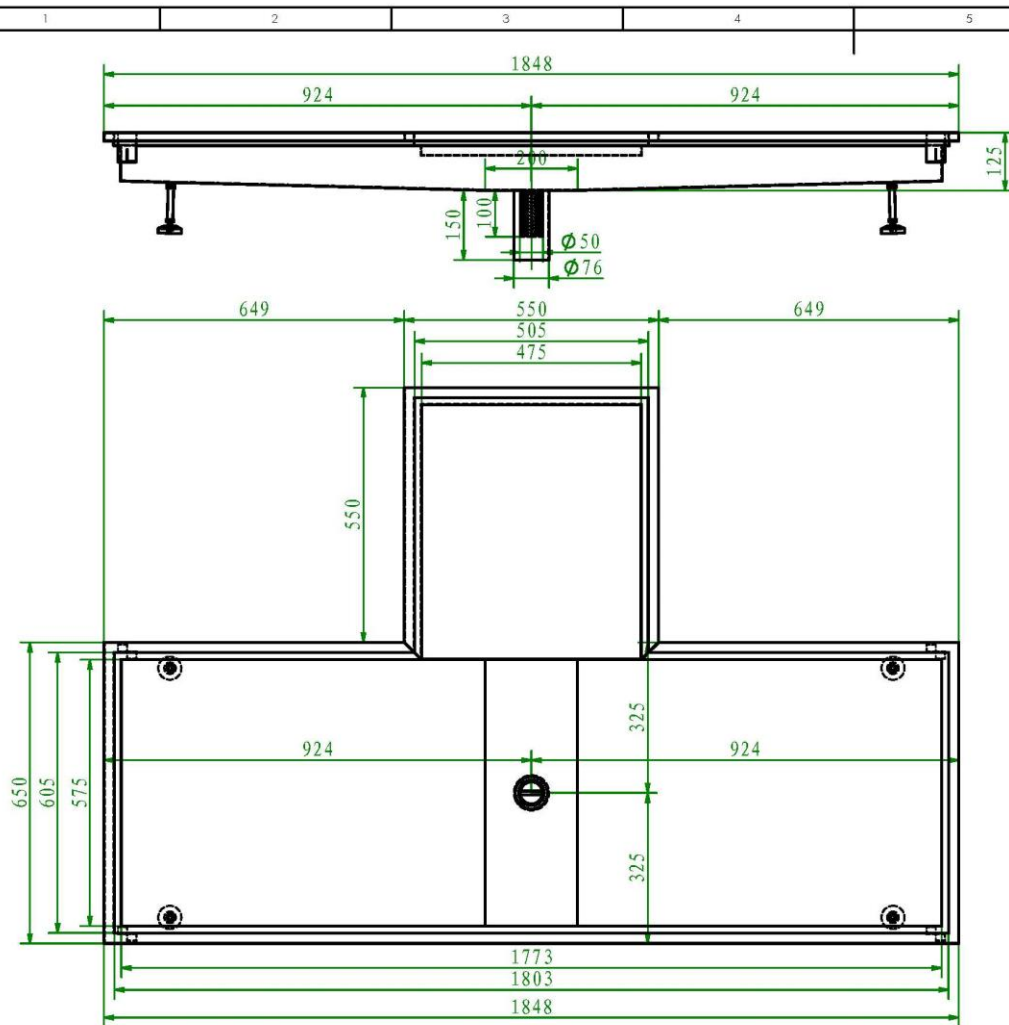




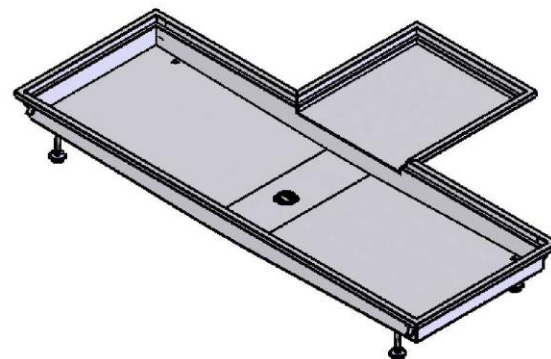


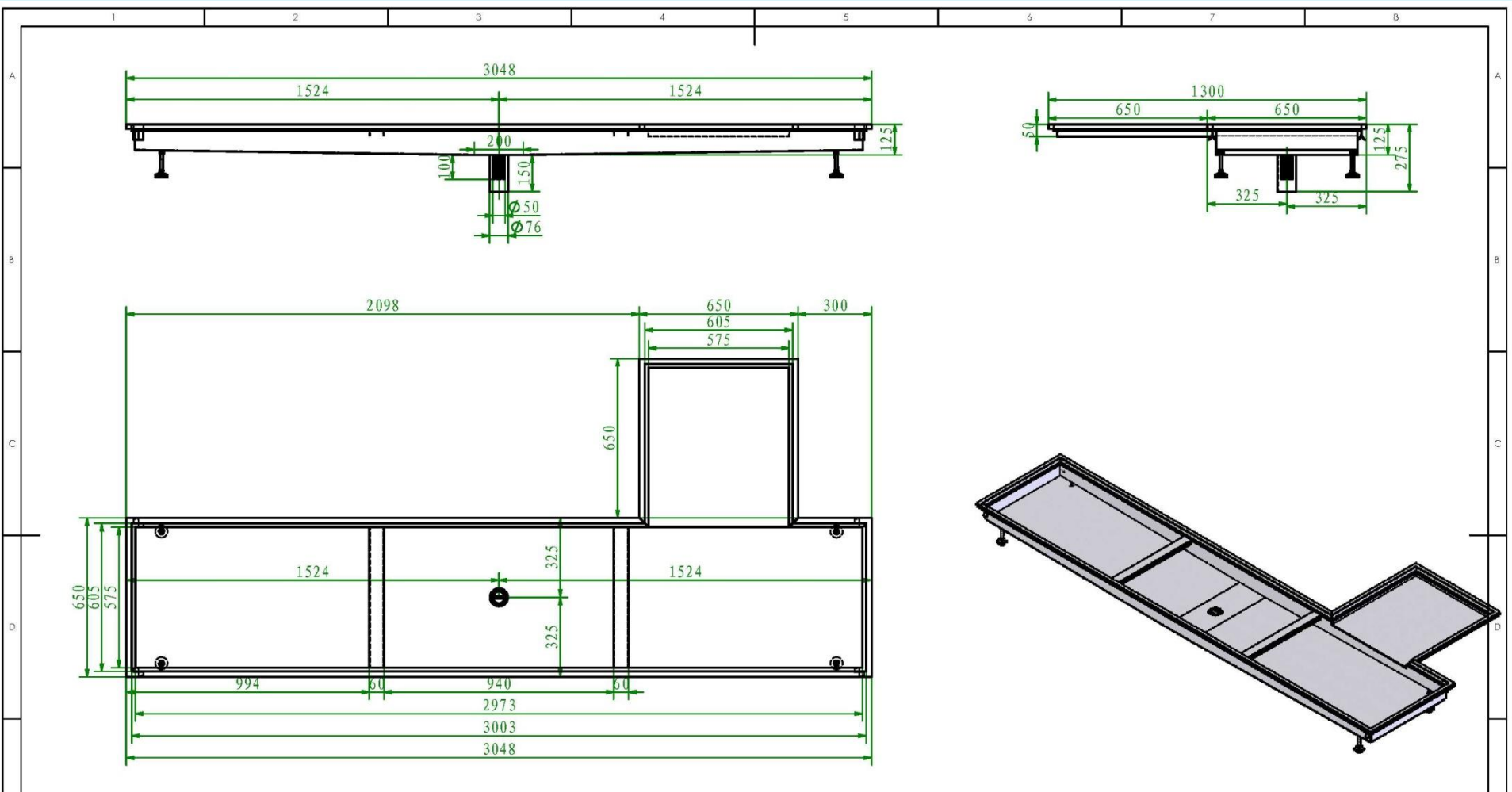


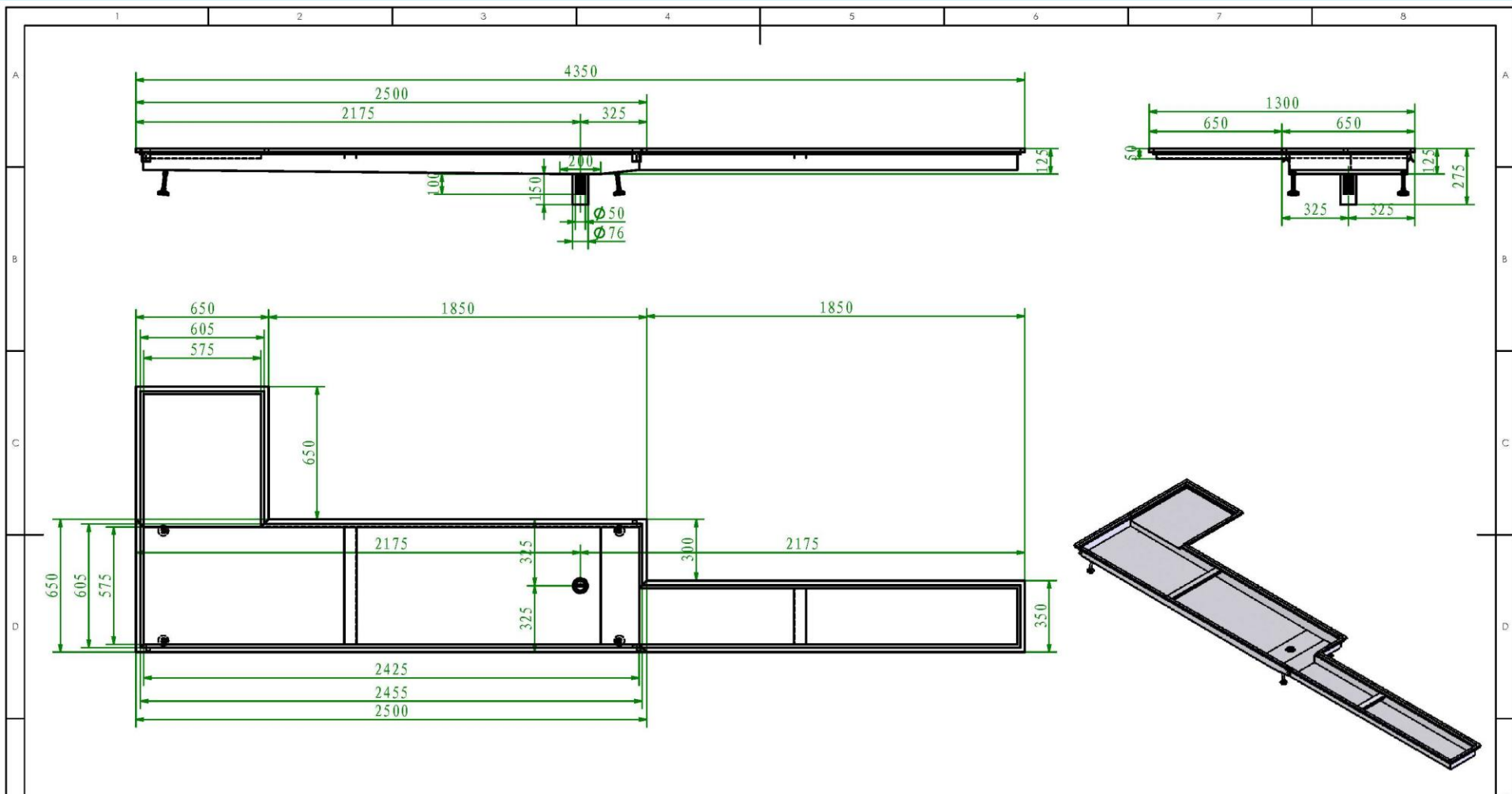


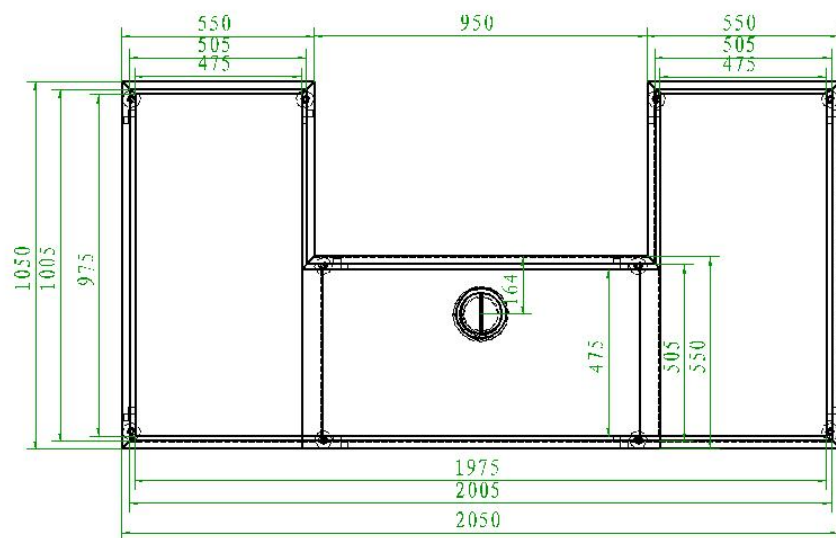
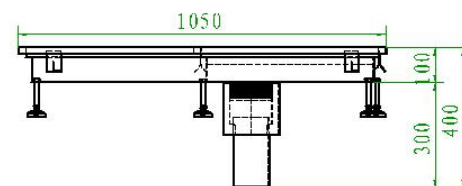
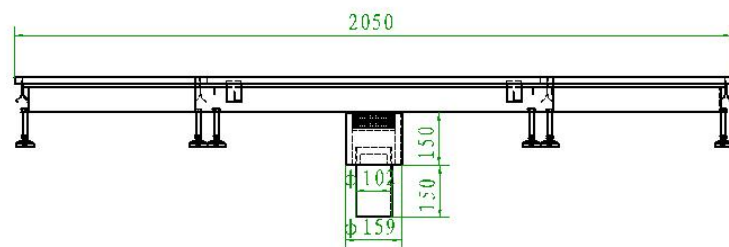


**MGM Grand Ho Tran  
Vietnam**

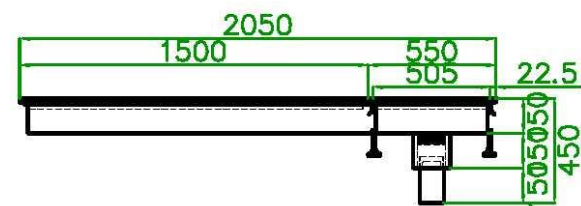


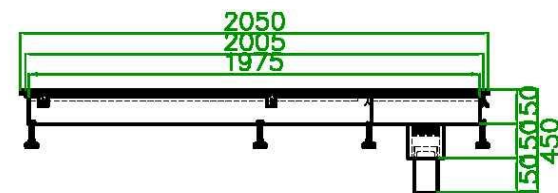
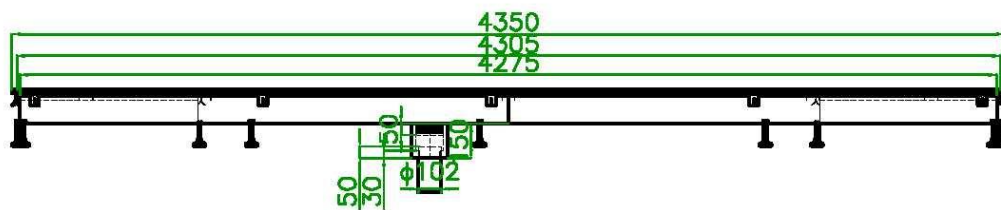




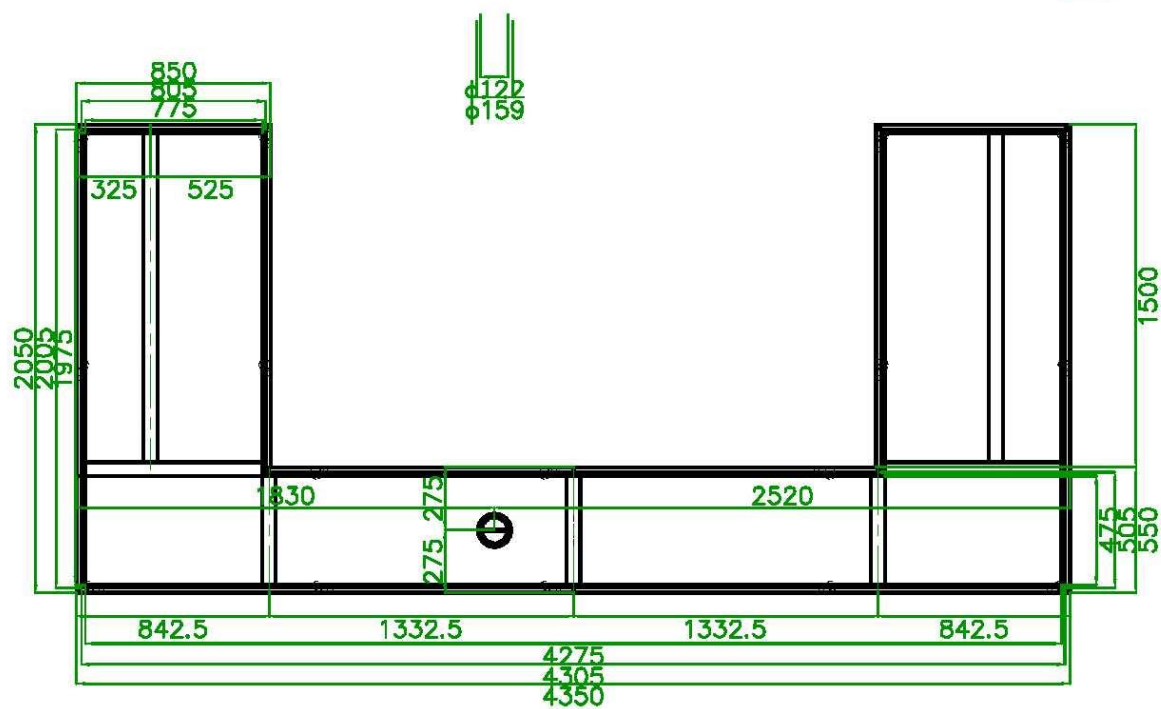


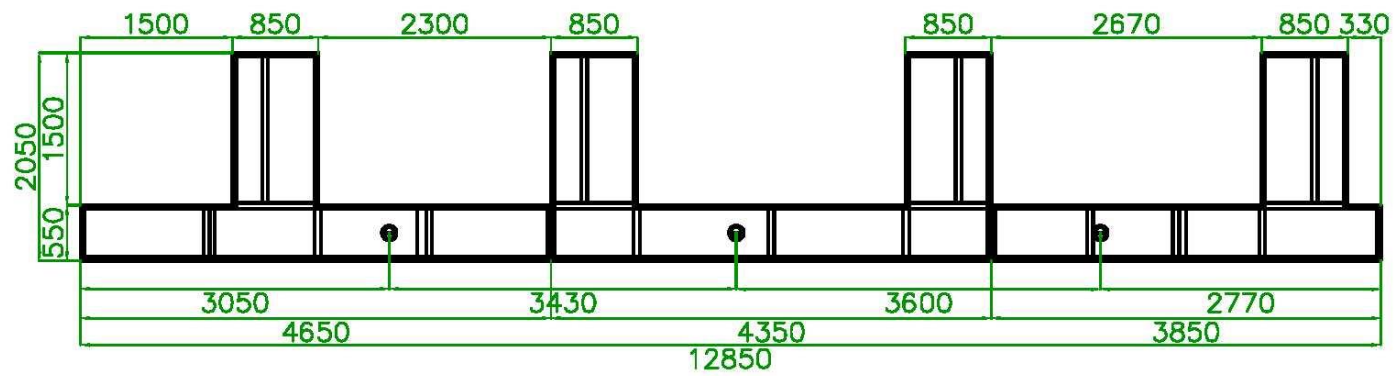
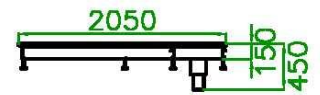






150



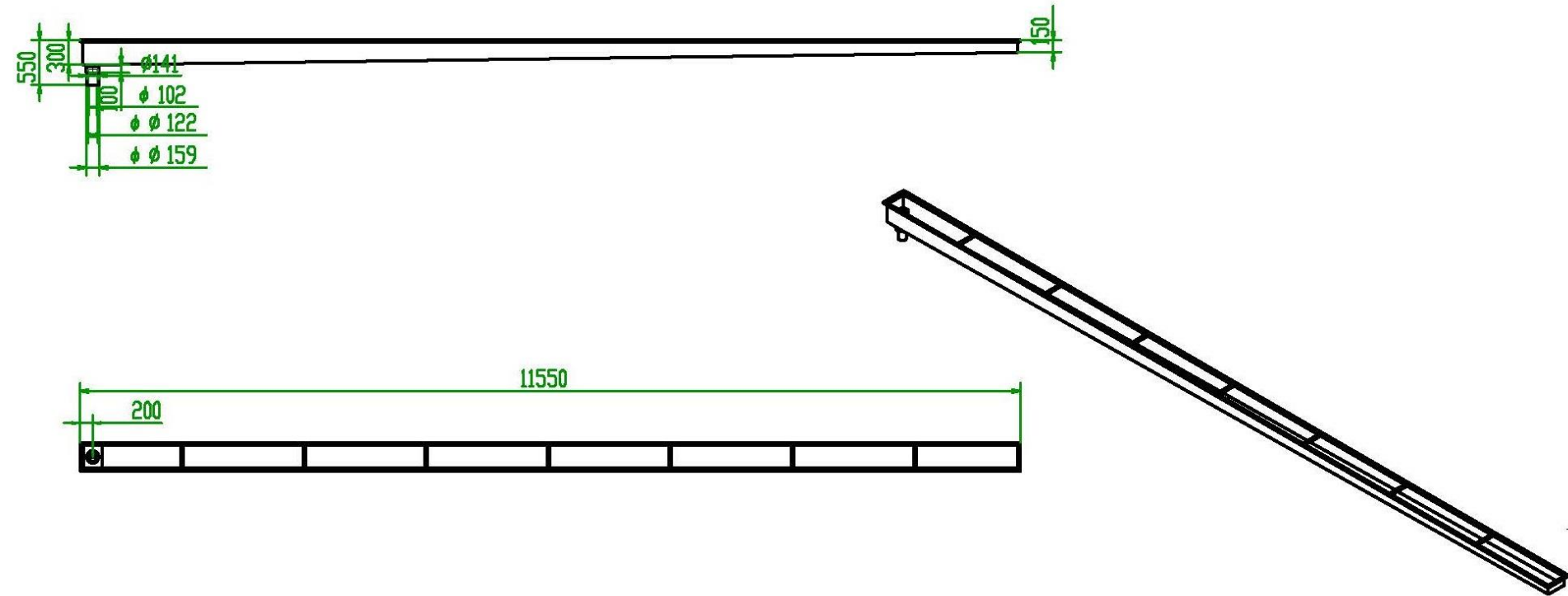


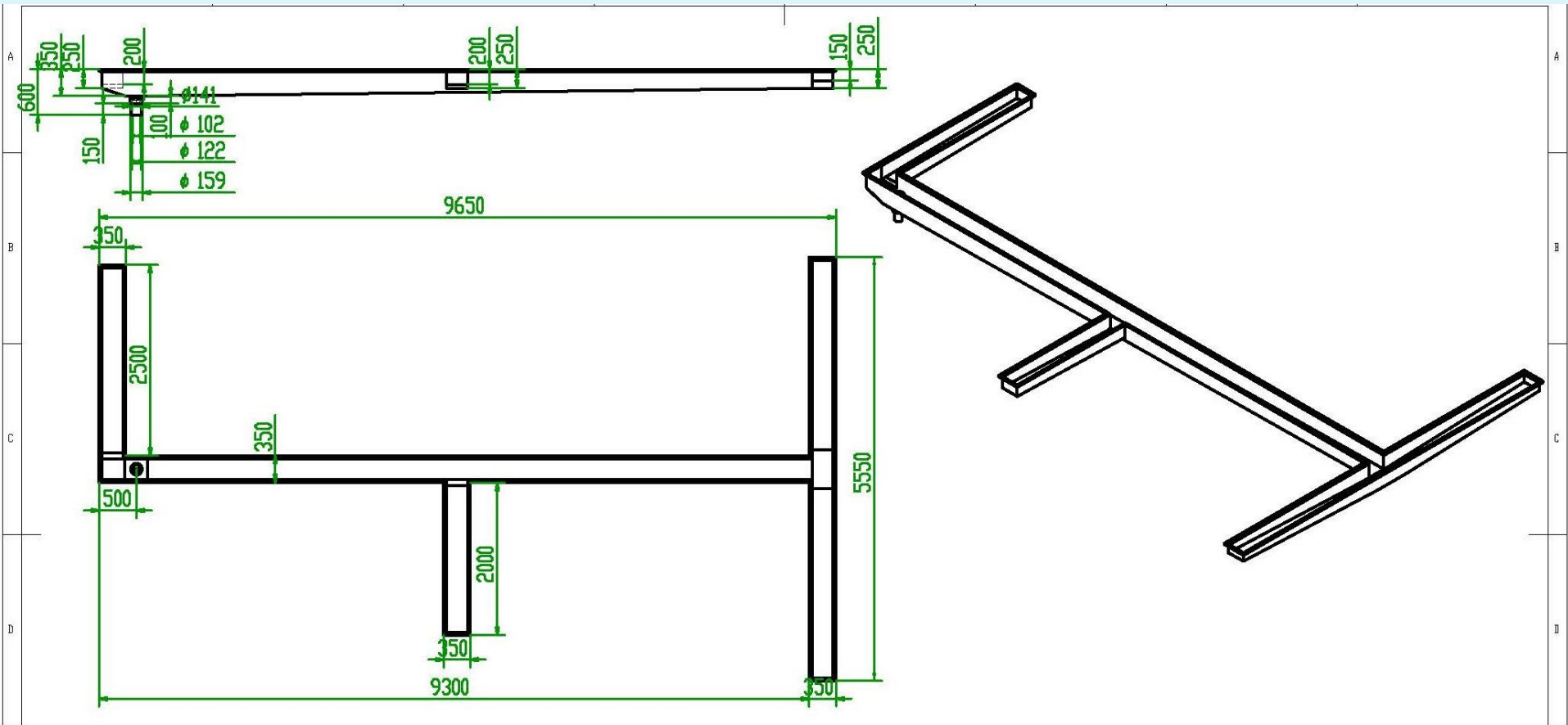


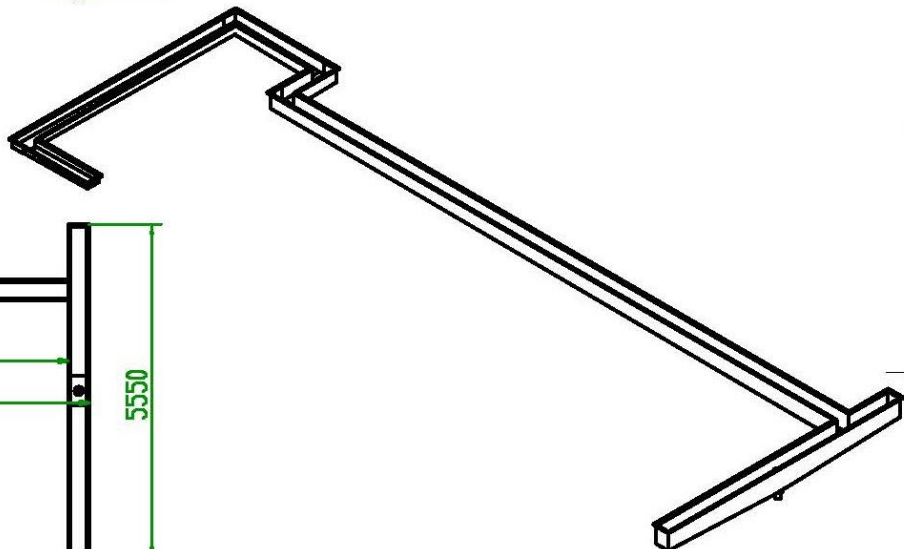
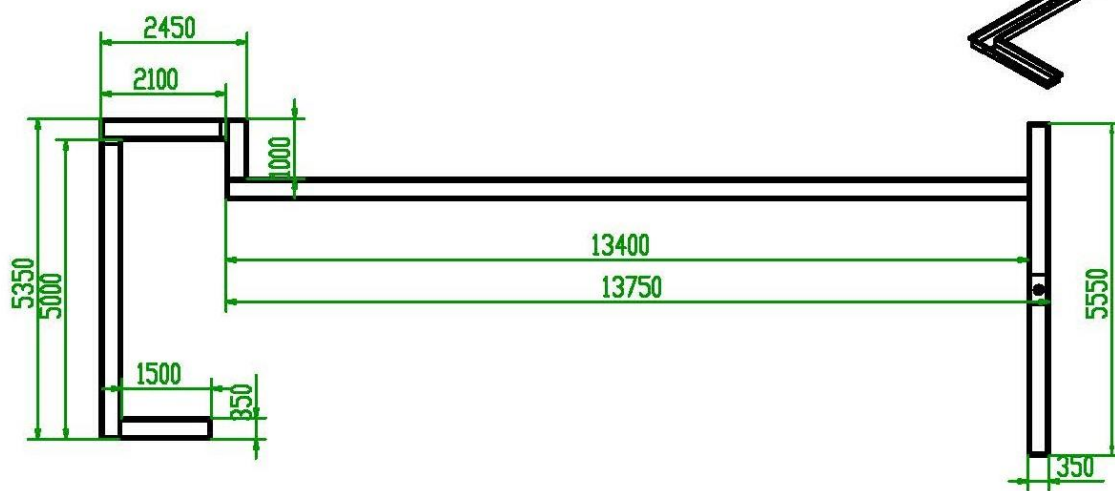
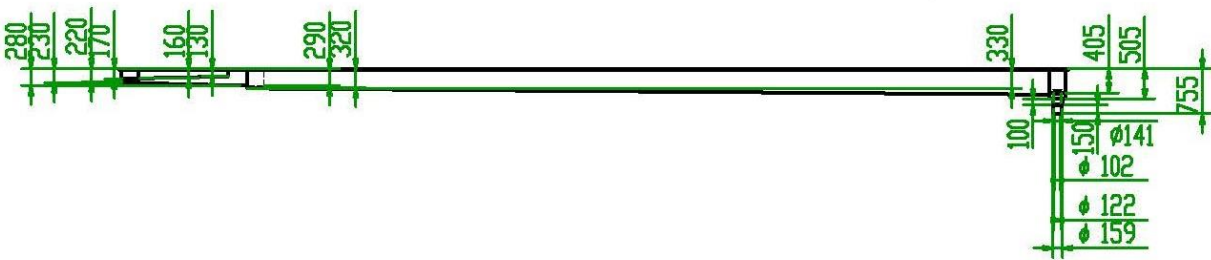


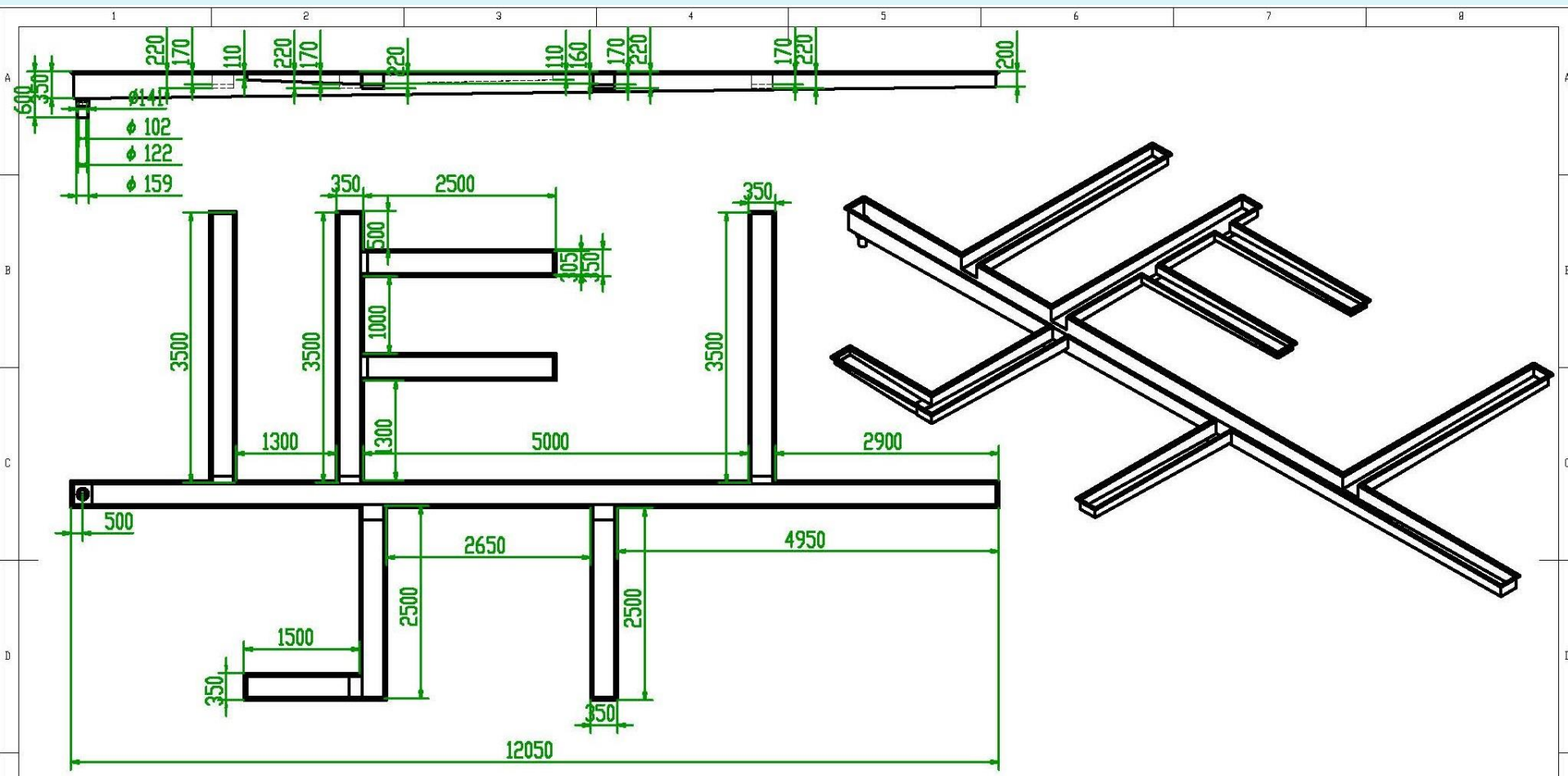
# Custom-Made Irregular Floor Channels

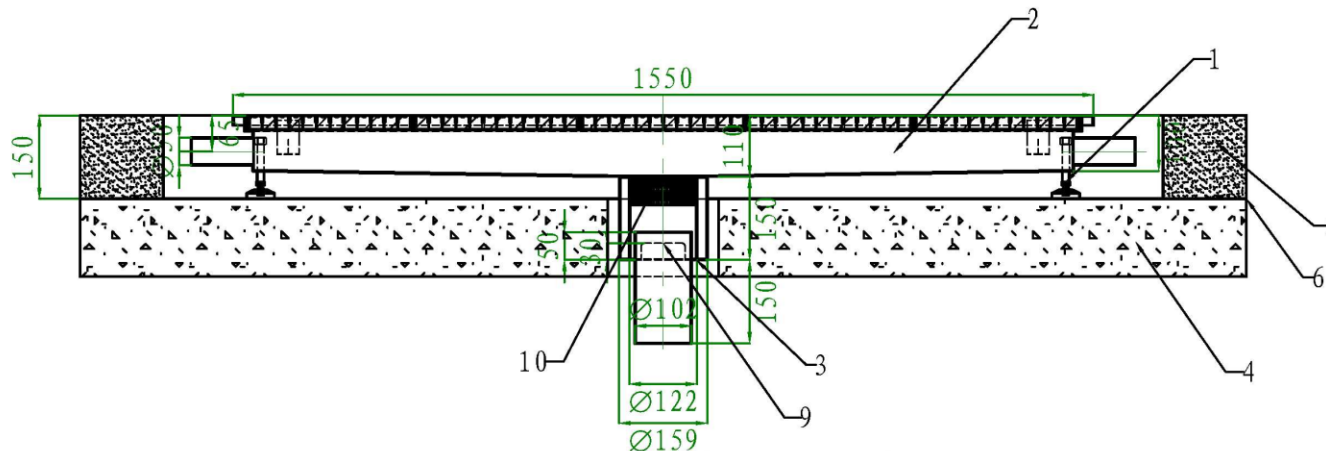
(New Grand Lisboa Macau)



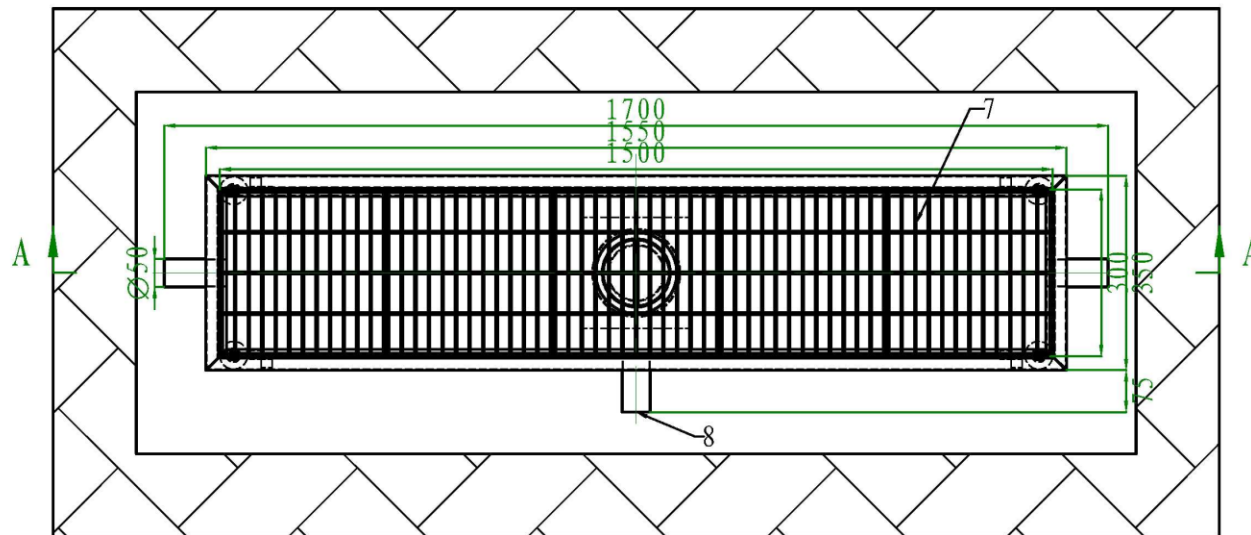








TYPICAL DETAIL OF FLOOR CHANNEL WITH GRATING & GULLY(WITH VERTICAL OUTLET)



- LEGEND:
- 1 - LEVELING BOLT
  - 2 - CHANNEL
  - 3 - GULLY
  - 4 - STRUCTURAL SLAB
  - 5 - SCREED + FLOOR FINISH
  - 6 - WATER PROOFING
  - 7 - GRATE
  - 8 - 50mm SIDE INLET WITH SOCKET
  - 9 - FOUL AIR TRAP
  - 10 - SILT BASKET

Specifications on Channels:  
1.5mm or 2.0mm thick S.S whichever required;  
Hairline finishing;  
Depth of channels can be made according to site requirement and condition.

Specifications on Gratings:  
5mm thick S.S for outside frame and 3mm thick S.S for all interiors, Hairline finishing;  
Anti-slip on one side and plain on the other side.



Floor Channel

DIMENSION:

1550mmL x 350mmW x 100mmD

Material:

#304 Stainless steel

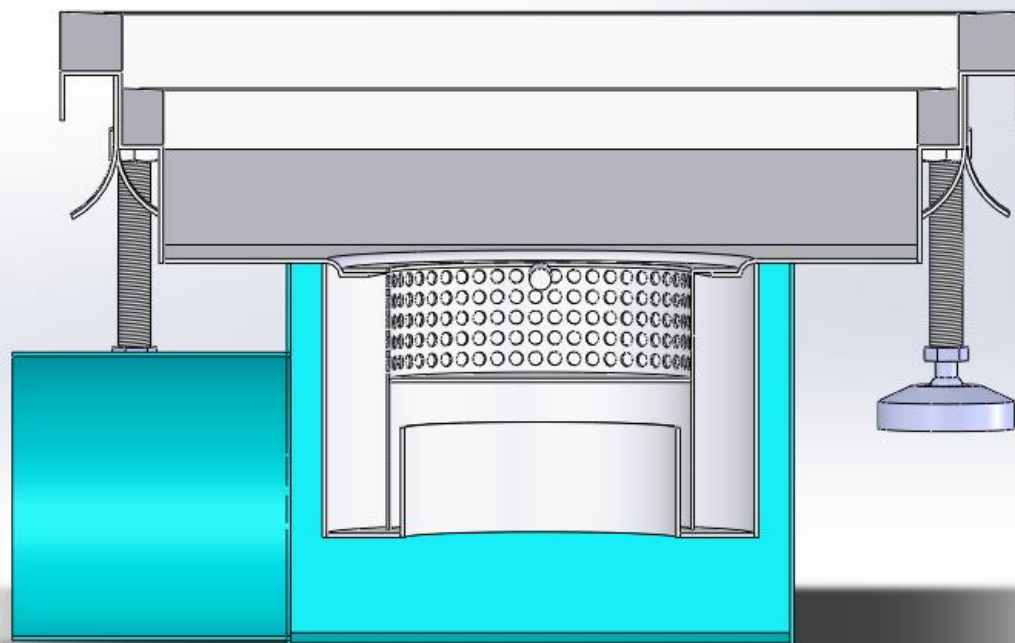
Scale

UNIT: mm



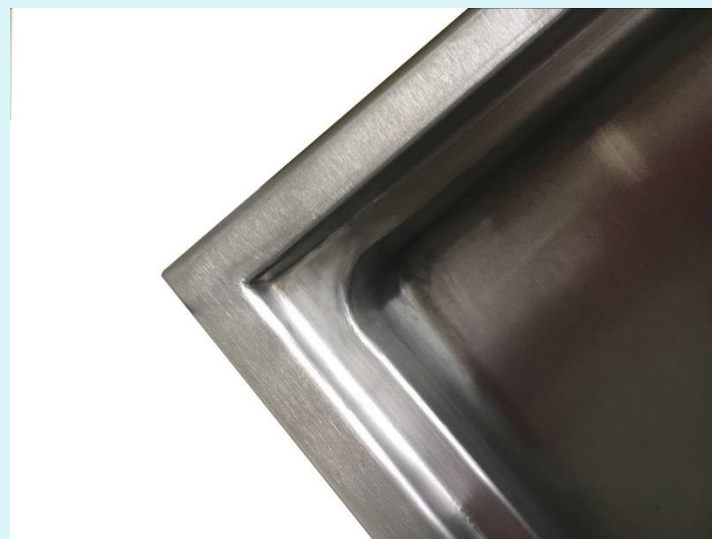
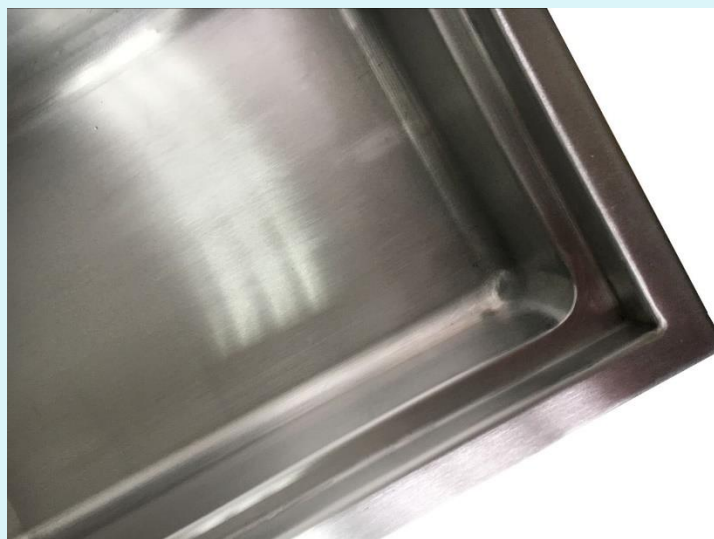
## 1

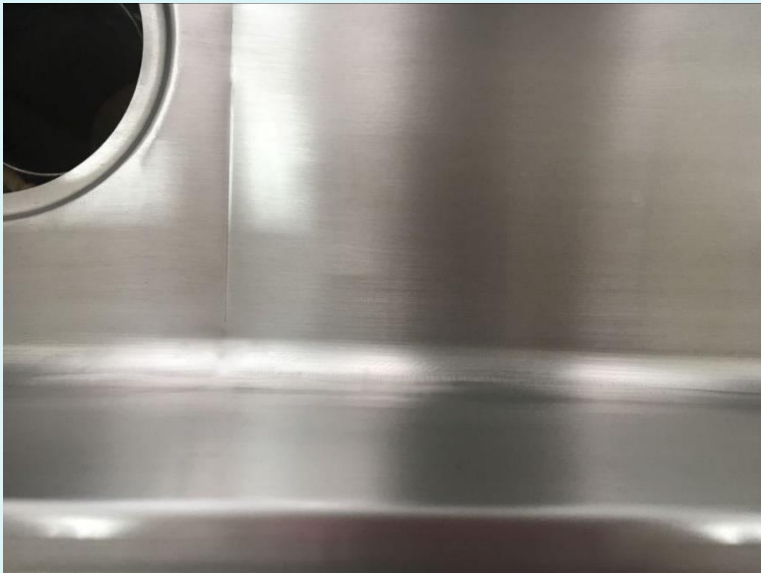




**New Floor Channels**  
**with Round Corners & Round Edges**  
(Optional & Can be made to order in any sizes, in any depth,  
in any shape and configuration)



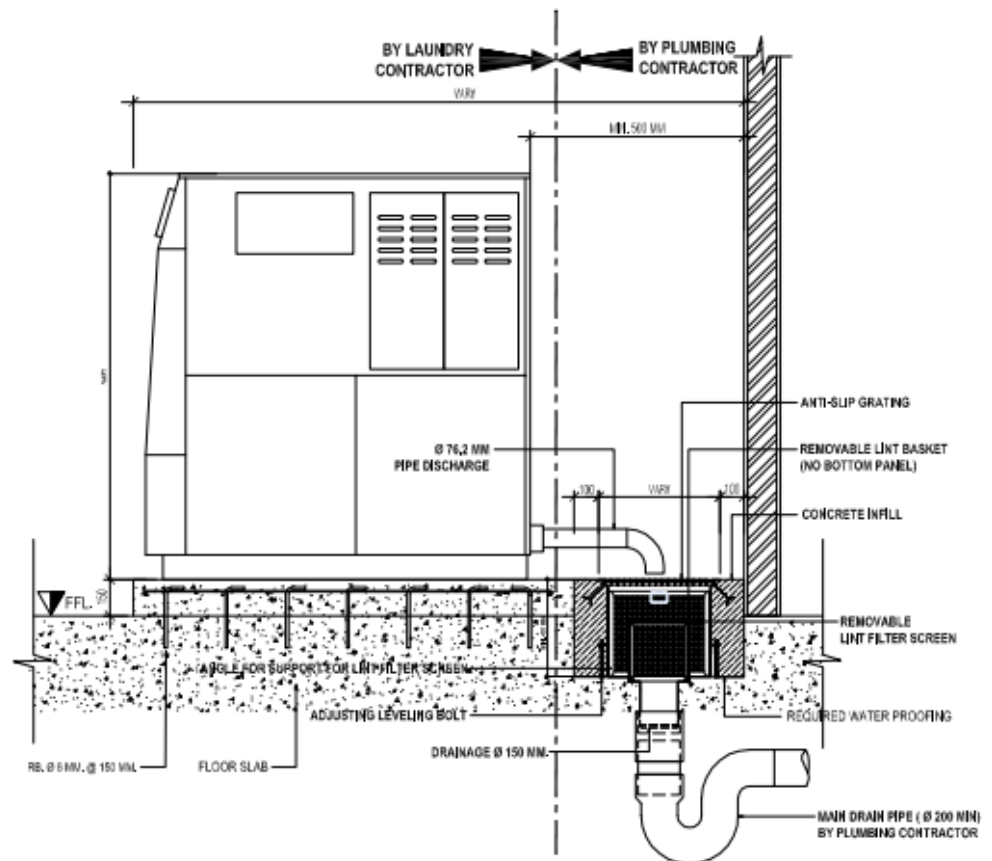




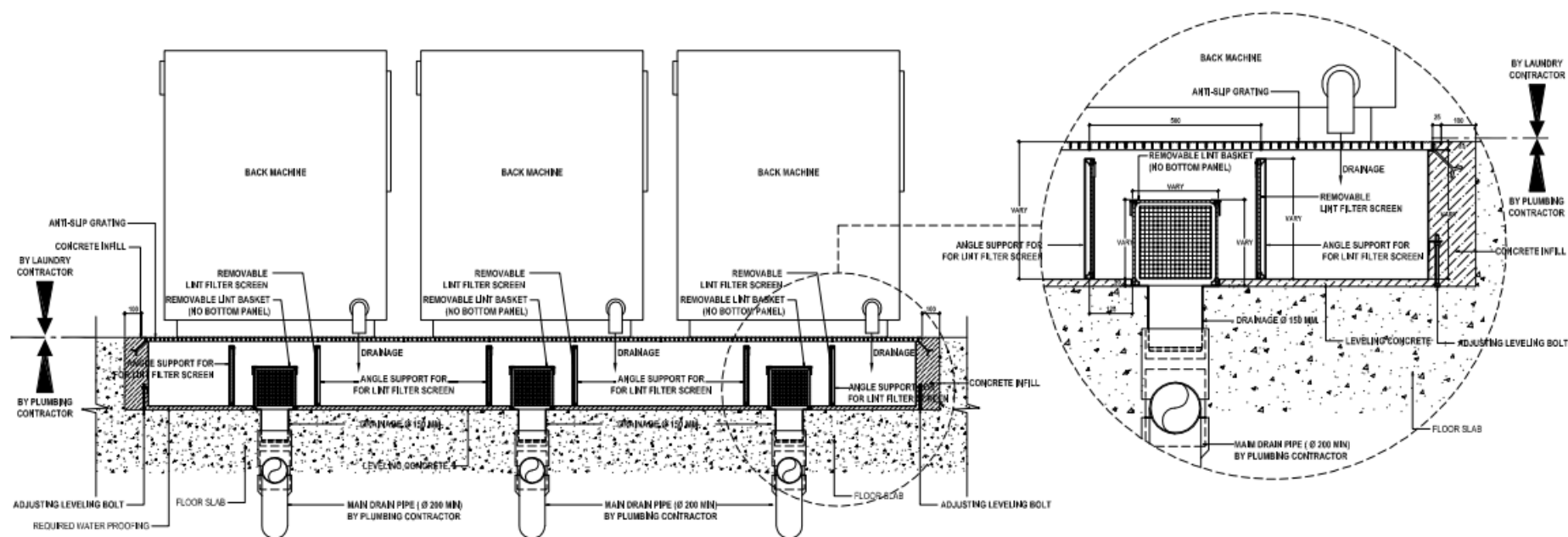


**TYPICAL CROSS SECTION FOR CONCRETE PLINTH & FLOOR CHANNEL WITH GRATING TYPE C**

### DETAIL OF WASHER ANCHOR



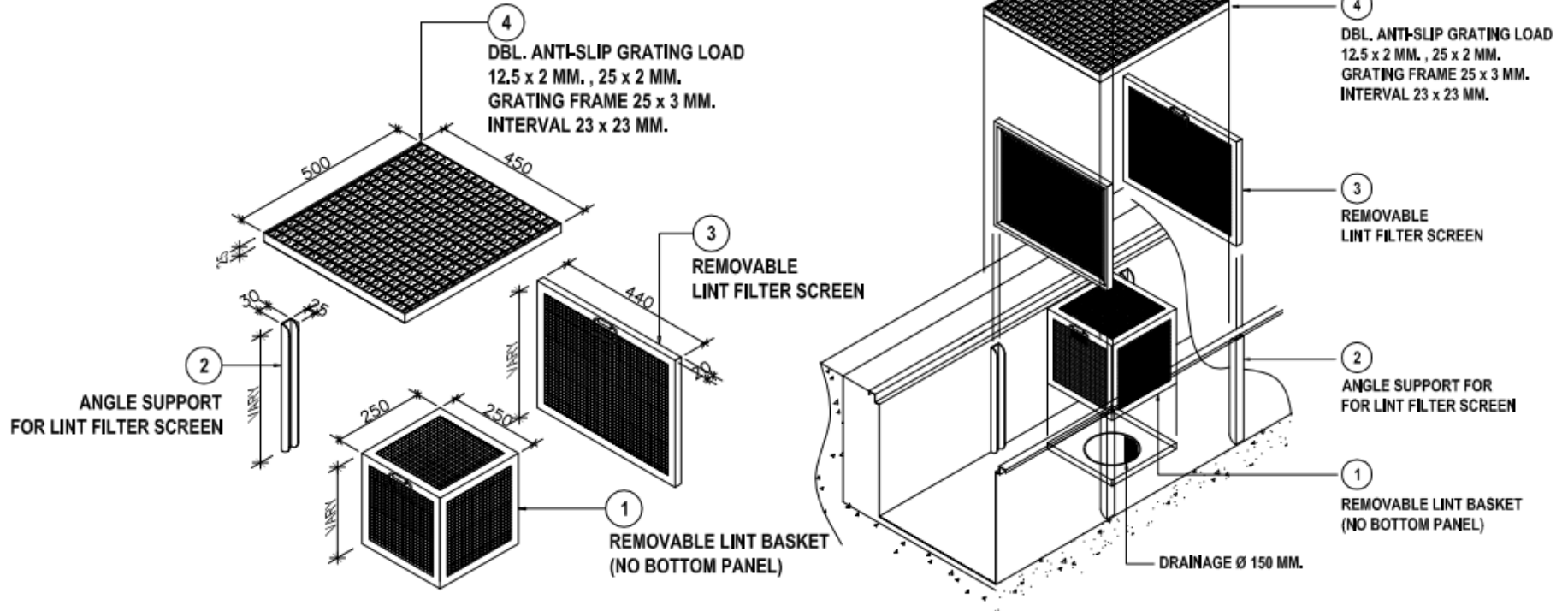
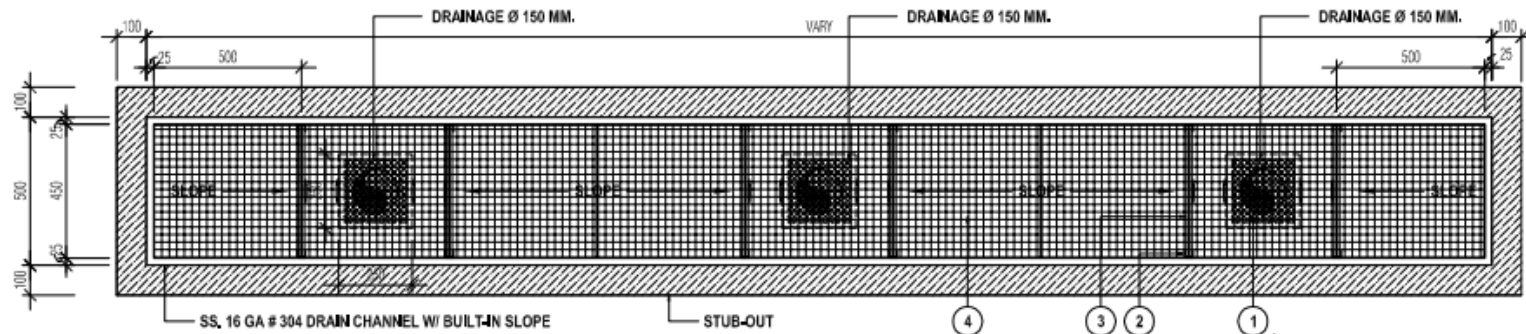
**TYPICAL LONGITUDINAL SECTION FOR FLOOR CHANNEL WITH GRATING TYPE C**

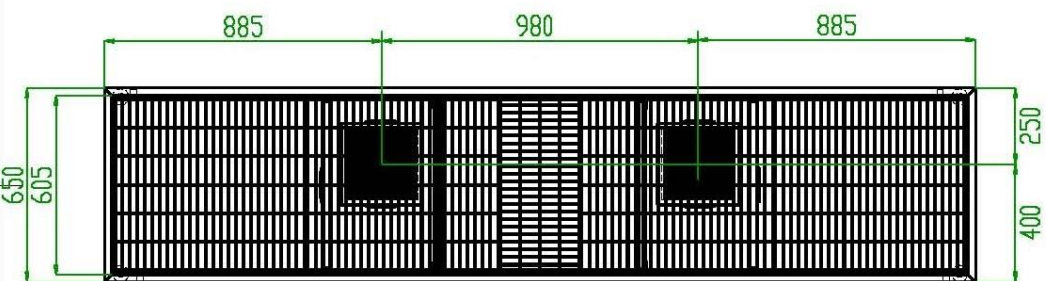
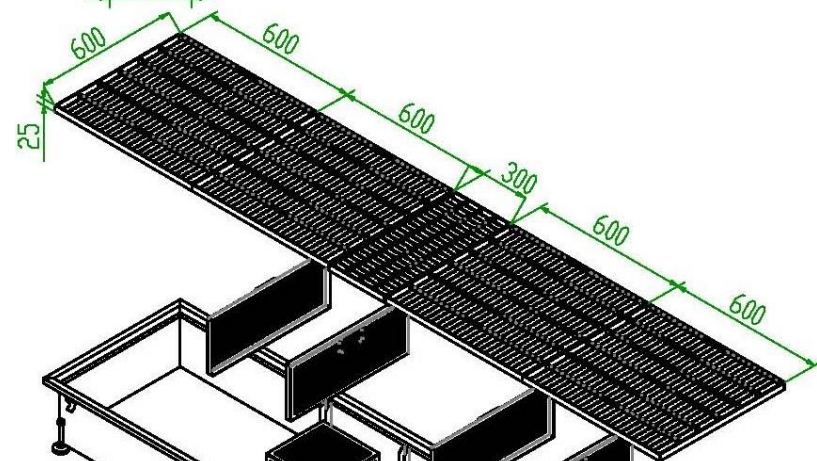
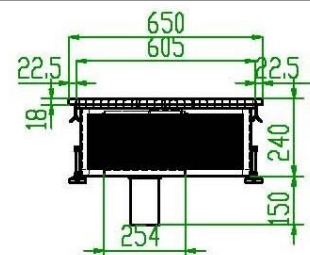
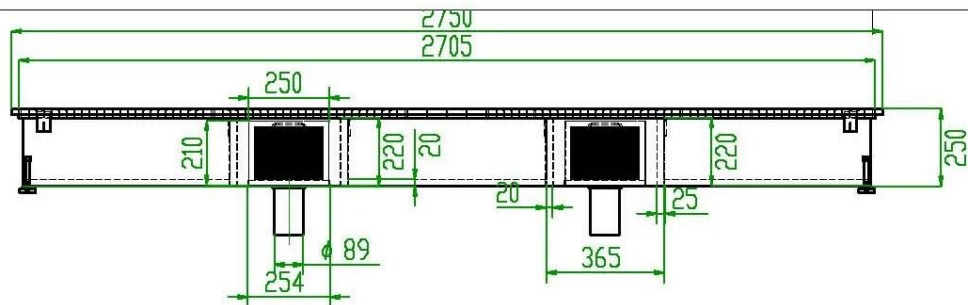


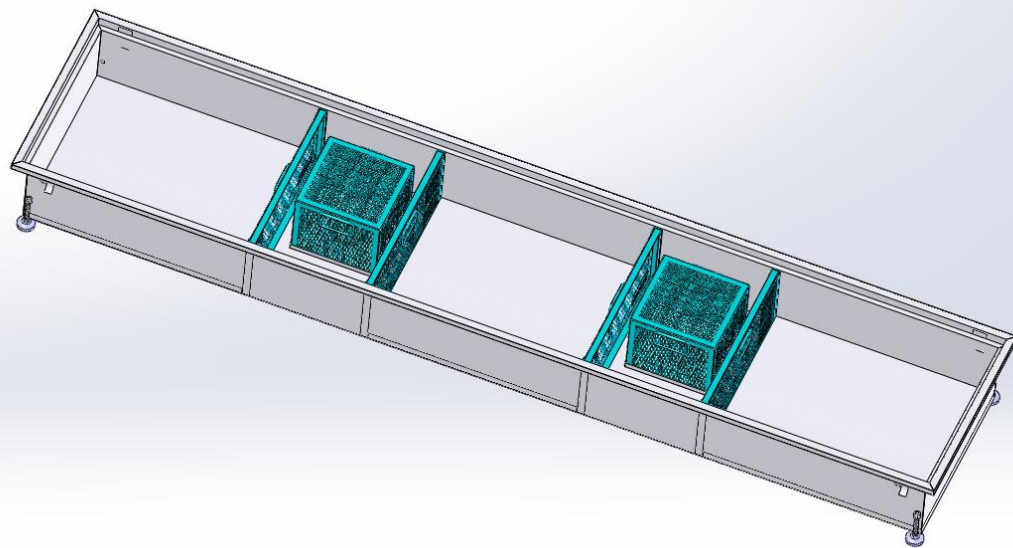
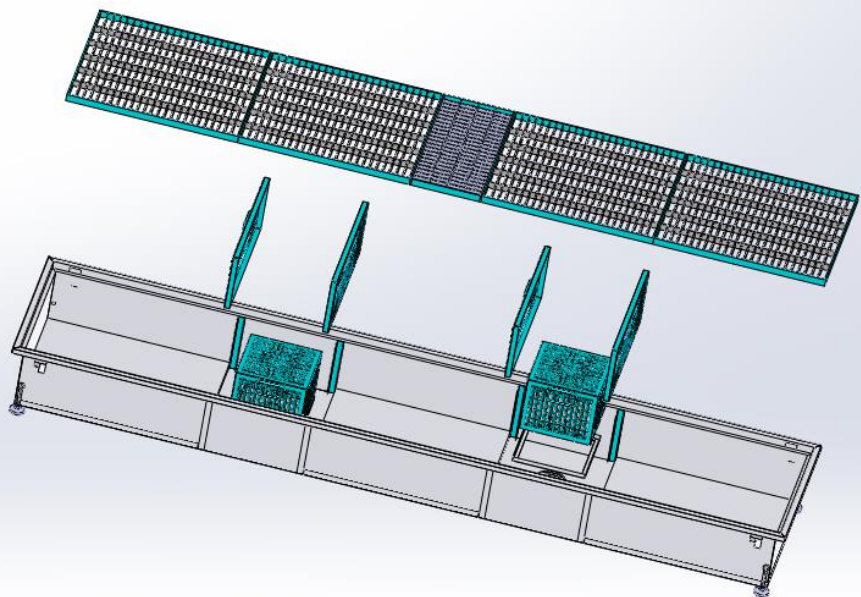
## DETAILS FLOOR CHANNEL & GULLY W/ GRATING TYPE C

GROUND FLOOR

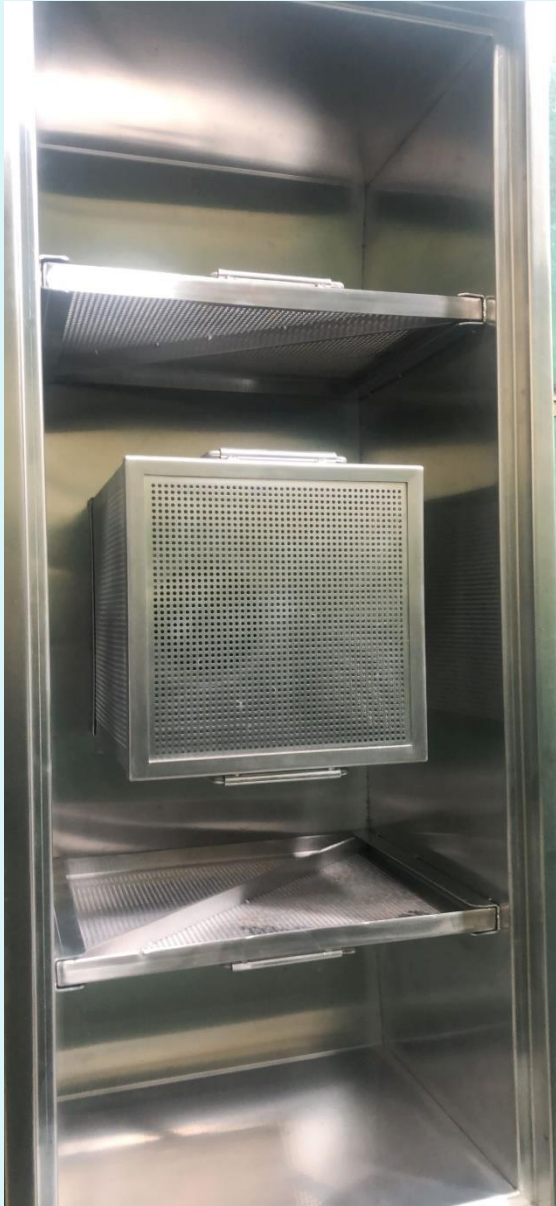
LDA-012

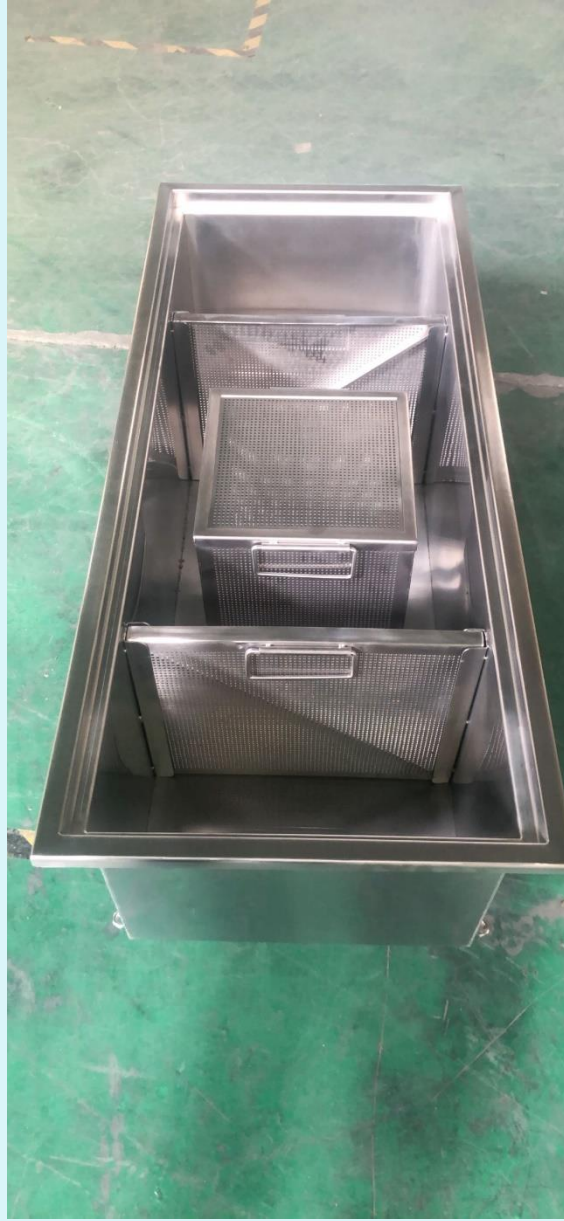
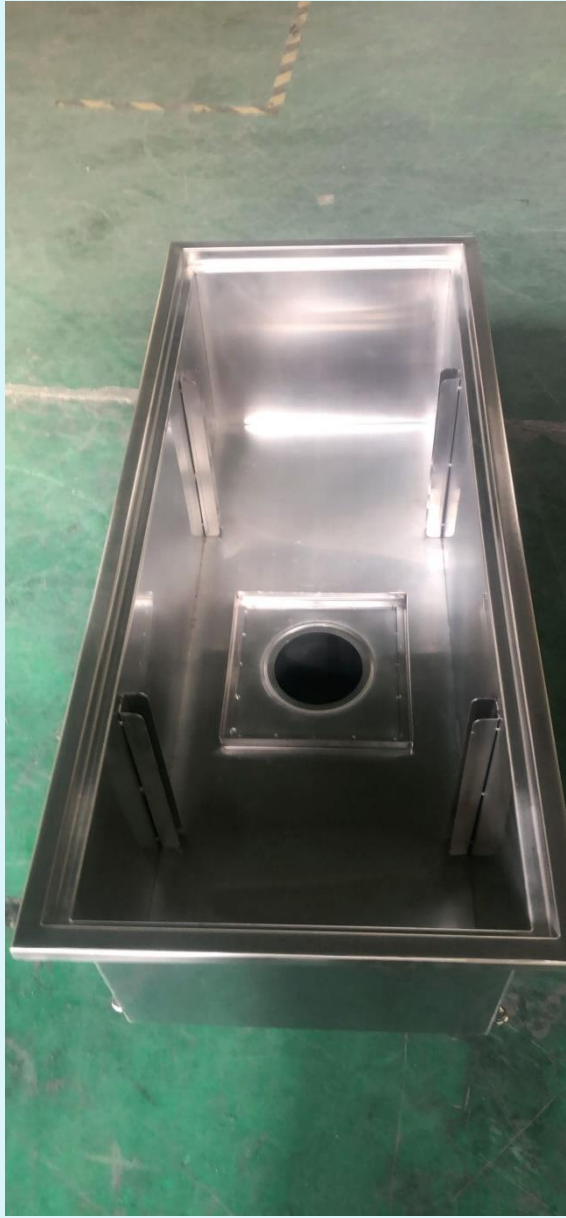












# Installation Reference for DSS Gratings & Channels

(As of December 2022)

## **Africa**

*Hilton Mauritius (2014)*  
*Zil Passyon, Seychelles (2014)*

## **Bangladesh**

*Le Meridien Dhaka (2013)*  
*Courtyard Marriott Dhaka (2013)*  
*Eden Hotel Dhaka (2013)*  
*Inter-Continental, Dhaka (2016)*  
*Holiday Inn City Center Dhaka (2017)*  
*The Peninsula Banglaesh Chittagong (2019)*

## **Bahrain**

*Conrad Hotel - Bahrain (2022)*

## **Cambodia**

*Marriott Courtyard, Siem Reap (2016)*  
*The Quay Hotel Phnom Penh (2021)*  
*Kompong Dewa (2022)*

## China

*AstraZeneca, Shanghai (2016)*

*Pu Shang Hotel, Xiamen (2017)*

*Diao Yu Tai State Guest House, Yang Yuan Zhai, Beijing (2019)*

*Universal Studios, Bei Jing (2019)*

*Diao Yu Tai, Wan Liu Tang, Bei Jing (2020)*

*Universal Studios Staff Kitchen, Bei Jing (2020)*

*Xi'an Chanba Huayi Hotel (2021)*

*Embassy of Belgium Beijing (2022)*

## Ethiopia

*Hyatt Regency Addis Ababa (2017)*

## Hong Kong, China

*H3 Hotel (2016)*

*Rosewood Hotel (2016)*

*Shangri-La, Package II (2016)*

*Hong Kong Jackey Club (2017)*

*Jefferoad L3 Lounge Bar (2020)*

*HKJC OCBB B216 Kwun Tong (2021)*

*OCBB B504 Central HKJC (2022)*

*HKJC@Kwai Chung (2022)*

*HKJC (2022)*

*Mariners Club, Hong Kong (2022)*

*HKJC Shatin Racecourse Grandstand 16-F (2022)*



## **India**

***Marriott Hotel, Mumbai***

***Taj Bake, Keralal***

***Brigade Sheraton Hotel, Bangalore***

***Pullman, New Delhi***

***Radisson Kaushambi, Ghaziabad***

***Spirit Hotels & Resorts***

***Leela Hotel – New Delhi***

***Leela Megu Restaurant***

***Peppermint, Jaipur***

***Pink Square, Jaipur***

***Park Hyatt, Chennai***

***Marriott Whitefield, Bangalore***

***Leela Palace, Chennai***

***Radisson MBD, Ludhiana***

***Crown Plaza, Greater Noida***

***Bridge Group, Bangalore***

***Lalit Hotel, Chandigarh***

***Courtyard Marriott, Bhopal***

***Sheraton Resort, New Delhi***

***Crown Plaza, Ahmedabad***

***Trident Hotel, Hyderabad***

***Hilton Shillim, Mumbai***

***JW Marriott, New Delhi***



*Courtyard Marriott Hotel, Chakan (2012)*  
*Sunset Terrace (2012)*  
*Royal Orchid Hotel, Bharuch (2012)*  
*Kapico Banyan Tree (2012)*  
*New Sunset Terrace Kitchen, Fateh Prakash Palace, Udaipur (2012)*  
*DLF Magnolia (2012)*  
*Lalit Hotel, Kolkata (2012)*  
*Hyatt Regency, New Delhi (2012)*  
*ITC, Chennai (2012)*  
*Courtyard Marriott, Kochi Airport (2012)*  
*Novotel Hotel, Goa (2012)*  
*Grand Mercure, Goa (2012)*  
*Advani Hotels & Resorts, Goa (2013)*  
*Aloft Hotel, Bangalore (2013)*  
*Marriott Kochi City, Kerala (2013)*  
*Park Hyatt Chennai Extension (2013)*  
*Hilton Double Tree Agra Astor (2013)*  
*JW Marriott Sahar, Mumbai (2013)*  
*Sahara Star Hotel Mumbai (2014)*  
*Shangri-La Bangalore (2014)*  
*Grand Mercure, Bangalore (2014)*  
*Fairmont New Delhi (2014)*  
*JW Marriot Mumbai (2014)*  
*Maharana Mewar Public School, Udaipur (2014)*  
*Courtyard Marriott Raipur (2014)*  
*Dusti D2 Dial - New Delhi (2014)*

*Shangri La Bangalore (2015)*  
*JW Marriott Kolkatta (2015)*  
*Radha Regent Hotel Chennai (2015)*  
*Techno Park, Chennai (2015)*  
*Aloft Hotel, Gurgaon (2016)*  
*Novotel Hotel, Chennai (2016)*  
*Sheraton Hotel Bangalore (2016)*  
*Holiday Inn Express, Bangalore (2016)*  
*Conrad Bangalore (2016)*  
*Embassy Pristine, Bangalore (2017)*  
*Aloft Hotel, Gurgaon (2017)*  
*Radisson Blue (2017)*  
*Marriott Yogyakarta (2017)*  
*Marriott Coorg (2017)*  
*Crowne Plaza, Mayur Vihar (2017)*  
*Novotel Hotel Vijyawada (2017)*  
*OFS Mumbai (2019)*  
*Google Omega Hyderabad (2019)*  
*Manjari (2019)*  
*Hilton & Hilton Garden Inn (Combo) (2020)*  
*Gogo, Gurgaon (2021)*

## **Indonesia**

***Tandjung Sari Resorts, Bali***

***Grand Hyatt, Bali (2012)***

***Grand Hyatt, Bali (2013)***

***Sofitel Bali Nusa Dua, Beach Resort (2013)***

***Hilton Double Tree, Jakarta (2013)***

***Ritz Carlton Ubud, Bali (2014)***

***Westin Hotel Cemindo Tower, Jakarta (2014)***

***Trans Hotel, Bali (2014)***

***IKEA Jakarta (2014)***

***Grand Hyatt Jakarta (2015)***

***Indigo Hotel, Seminyak, Bali (2015)***

***Inter-Continental Pondok Indah Hotel, Jakarta (2016)***

***Bukit Pandawa Golf Course (2016)***

***Xin Hwa Restaurant Mandarin Oriental, Jakarta (2016)***

***Alila SCBD GF (2016)***

***Shangri La Jakarta - Shang Palace (2016)***

***Marriott, Yogyakarta (2016)***

***Radisson Blue, Bali (2016)***

***Grand Cafe - Grand Hyatt, Jakarta (2017)***

***Taman Gita Restaurants Renovation (2017)***

***Nagaworld 2 Phnom Penh (2017)***

***Inter-Continental Pondok Indah Hotel, Jakarta (2017)***

*Radisson Hotel, Lampung (2018)*  
*Shangrila Hotel, Bali (2018)*  
*Hyatt Hotel, Bali (2018)*  
*Intercontinental Pondok Indah Hotel Jakarta (2020)*  
*Kimpton Bali (2020)*  
*Langham Hotel Jakarta (2020)*  
*Banyu Biru Restaurant & Boat House by Laguna Nusa Dua (2022)*  
*Beach Club Khayangan Bali (2022)*

## **Macau, China**

*Theme Park Resort (2018)*  
*Macau St Regis Bar (2019)*  
*Venetian Macau - Japanse Ramen F&B (2019)*  
*Venetian High Limits -Shanghainese (2019)*  
*Venetian L3 Paiza and FB8 Londoner Club Lounge (2019)*  
*Macau Shanghainese (2020)*  
*Sands Cotai Centre (2020)*  
*4 Meal Londoner Macau (2020)*  
*Macau St Regis Hotel L36 Kitchen (2020)*  
*Gordon Ramsay Pub and Grill (2020)*  
*Sands Cotai Centre FB1 (2020)*  
*Tim Ho Wan, Sands Macau (2020)*  
*Venetian Macau - Apex (2020)*  
*Venetian Macau - Chiu Chow (2020)*

***New Yaohan Macau - Phase 1 & Phase 2 (2021)***

***Putien Restaurant (2021)***

***Event Centre (2021)***

***珠光大厦八杯喜 (2021)***

***Tong Soi F&B (2022)***

***Line Cafe (2022)***

## **Malaysia**

***Grand Hyatt, Kuala Lumpur***

***Double Tree Hilton Hotel, JB (2013)***

***St. Regis Langkawi (Pending)***

***Langkawi International Convention Centre (2014)***

***Matrade Exhibition Centre KL (2014)***

***Pastry Production Plant Subang Jaya (2015)***

***Damansara City Hotel, KL (2016)***

***Genting Central Kitchen (2016)***

***Valley Course Club House (2016)***

***Burger & Lobster Restaurant, Sky Avenue, Genting (2016)***

***Element Hotel - Staff Kitchen (2016)***

***Aman Club, Desaru (2016)***

***Aloft Langkawi (2017)***

***Hotel Avante & Conference Centre, Bandar Utama (2017)***

***Ramada Hotel@Medini, Johor Darul Takzim (2017)***



*Marriott Courtyard, Malacca (2018)*  
*W Hotel – French Restaurant, KL (2018)*  
*KL Eco City (2019)*  
*Spice Hotel Penang (2019)*  
*Purpose Hall at UCTS Phase 3, Sibu (2020)*  
*Park Royal Langkawi (2020)*  
*Nobu KL (2020)*  
*Kempinski 8 Conlay, KL, Malaysia (2020)*  
*New Marriott Penang (2021)*  
*Park Hyatt KL (2021)*  
*Marriott Pulau Perhentian (2021)*  
*Four Season Hotel Nobu (2022)*  
*HDL Warehouse (2022)*  
*Crown Plaza French Restaurant (2022)*  
*Menara Etiqa Google Office (2022)*  
*Intel Staff Cafeteria Penang (2022)*  
*Google Manera 1 Sentrum (2022)*

## **Maldives**

*Niyama Resorts*  
*Mudhoo Resort (2012)*  
*Malefushi (2013)*  
*Finolhoss Island Resort Baa Atoll, Maldives (2014)*  
*O&E Niyama, Maldives (2014)*  
*Vommulli Island Resort Maldives (2014)*

*Kanufushi Island Resort, Baa Atoll (2015)*  
*Anantara Kalutara (2016)*  
*Kandinma Island (2016)*  
*Ifuru Island Resort (2017)*  
*Thilaidhoo Resort (2018)*  
*Thiladhoo Resorts BAA Atou (2018)*  
*Central Laundry Maldives (2019)*  
*Zuma Maldives (2021)*  
*Amari Maldives (2022)*  
*Kanuhura Maldives- Spanish Restaurant (2022)*  
*Cross Road Island 3 (2022)*

## **Middle East**

*Nation Towers, Dubai (2012)*  
*SATS (Singapore Airlines Catering Project) in Riyadh (2012)*  
*Rotana Riyadh, Saudi Arabia (2013)*  
*Ritz Carlton, Dubai (2013)*  
*Sheraton Burj Al Salam, Dubai (2013)*  
*Connexion (2013)*  
*Armani, Dubai (2013)*  
*Almaz, Dubai (2013)*  
*Zuma Abu Dhabi (2013)*

*Park Hyatt Zamani Palace (2014)*  
*Le Meridien Abu Dhabi (2014)*  
*Nusret Rest (2014)*  
*Coya Rest (2014)*  
*Hilton Garden Inn Hotel - Tabuk, Saudi Arabia (2014)*  
*Ghayathi Community Hospital, Abu Dhabi (2015)*  
*Business Bay Renaissance Hotel Dubai (2015)*  
*Grand Hyatt Dubai Ballroom Extension (2016)*  
*Qasr Al Sultan @ Jabel Ali (2016)*  
*Rosewood Hotel, Saudi Arabia (2017)*  
*Millennium Deyaar Hotel, Dubai (2017)*  
*Ritz Carlton Hotel Renovation, Doha (2018)*  
*Gunaydin Restaurant Bluewater Dubai (2018)*  
*SBR Additional, Qatar (2018)*  
*Lower Fars Heavy Oil, Kuwait (2018)*  
*Crowne Plaza Dubai (2018)*  
*Al Jaddaf (2019)*  
*Aloft Al Garhoud Hotel (2019)*  
*Waldorf Astoria Aqtar (2020)*  
*DAB (2021)*  
*Waldorf Astoria Doha (2021)*  
*HIA Mourjan Lounge (2022)*  
*Hilton Garden (2022)*  
*Four Seasons (2022)*

## **Myanmar**

*KFC (2015)*

*Sedona Yagoon Hotel (2015)*

*Pan Pacific Hotel Yangon (2017)*

## **Philippines**

*Leisure Manila (2013)*

*City of Dreams - Belle Grande (2014)*

*Leisure Manila (2014)*

*Sheraton Hotel Manila (2017)*

*Nustar-Cebu Integrated Resort (2022)*

## **Singapore**

*Resorts World Sentosa*

*(Universal Studio, Casinos & Hotels)*

*University Town-Khaya & Angsana*

*University Town Cinnamon & Tembusu*

*Sebawang Country Club*

*Grand Hyatt*

***OUE Plaza Sky Restaurant – ZUITS (2012)***  
***Argentum Group Food Axis (2012)***  
***Suntec Convention Centre (2012)***  
***Movenpick Heritage Hotel (2012)***  
***Traders Hotel (2012)***  
***Westin Hotel (2012)***  
***Grand Hyatt (2013)***  
***Sports Hub (2013)***  
***Conx 2 (2013)***  
***Yale NUS College (2014)***  
***INSEAD L6 Singapore (2014)***  
***Francais De Singapore (2014)***  
***RWS Japanese Restaurant (2014)***  
***South Beach Hotel (2014)***  
***Capitol Development (2014)***  
***Laguna Golf Country Club (2014)***  
***MBS @ L55 Singapore (2014)***  
***Jurong Hotel (2014)***  
***Ng Teng Fong General Hospital (2014)***  
***Asian Culinary Institute (2014)***  
***Capitol Hotel (2014)***  
***Kurihara (2014)***



*Apple 3 (2015)*  
*Master (2015)*  
*Island Cafe (2015)*  
*Yishun Hospital (2015)*  
*CFS Canaan Factory (2015)*  
*Facebook Cafe@South Beach Towel (2015)*  
*ST Luke (2016)*  
*Google Project Majulah (2016)Koodoo Laundry (2016)*  
*Tanah Merah Country Club (2017)*  
*Raffles Hotel (2017)*  
*AG Project (2017)*  
*Dusti Thani Laguna (2017)*  
*Intercontinental Hotel (2017)*  
*DUO Hyatt (2017)*  
*Renci Nursing Home (2017)*  
*Seng Kang Hospital (2017)*  
*Grand Park City Hall Hotel (2017)*  
*SATS 2 Extension (2017)*  
*Cassia Condotel Bintain (2017)*  
*Shangri La Hotel (2017)*  
*RWS New Teppan (2017)*  
*Anantara Resort Desaru (2018)*  
*Pullman Maamutaa (2018)*  
*Facebook (2018)*

*Raffles Hotel (2019)*  
*Hela Provincial Hospital, Papua New Guinea (2019)*  
*Google Campus Singapore (2019)*  
*SIA Silverkris Lounge at Changi Airport Terminal 3 (2019)*  
*Facebook Extension (2020)*  
*Edition Hotel (2020)*  
*TRP Kitchen (2021)*  
*Google Blk 70 level 7 (2021)*  
*Integrated Care Hub (2021)*  
*Potong Pasir Nursing Home (2021)*  
*Singapore Prison (2021)*  
*Mandarin Orchard Hotel, Singapore (2021)*  
*HP Kitchen Milky Way (2022)*  
*Woodlands Community Hospital (2022)*  
*Pan Pacific Hotel @ Singapore (2022)*  
*Mondrian Hotel Singapore (2022)*  
*Mandai Rainforest Singapore (2022)*  
*Grand Hyatt Singapore (2022)*

## **South Korea**

*SAMSUNG Semi-Conductor Centre (Mobile Display)*  
*SAMSUNG K-2 Project*  
*SAMSUNG Corning*

## **Sri Lanka**

***TAJ Bentota (2012)***

***Shangri-la Hotel Sri Lanka Hambantota (2014)***

***Anantara Kalutara (2015)***

***Shangri La Hotel Colombo (2016)***

***Kalpitiya (2018)***

***Intercontinental Colombo (2020)***

***Hilton Yala Sri Lanka (2020)***

## **Thailand**

***Park Plaza Hotel, Bangkok***

***Rama Hospital, Bangkok (2017)***

***Mandarin Oriental (2017)***

***Movenpick BDMS Wellness Hotel (2018)***

***Bangkok Hospital Phoenix Medical Center (2018)***

***Carlton Hotel Bangkok, Thailand (2019)***

***Banyan Tree Krabi Thailand (2019)***

***Manjari Project (2019)***

***JW Marriott Khaolak Banquet & Ballroom (2020)***

***Montien Surawong (2020)***

***BKC Wellness Resort (2020)***

***Mercure Rayong (2020)***

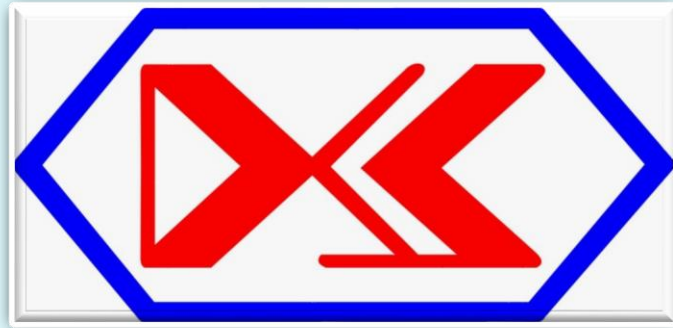
## **Vietnam**

***Da Nang Golf Club***

***Bitexo Building Restaurant, Ho Chi Minh***

***MGM Grand Ho Tram (2012)***

***Hoa Lam Shangri-la (2012)***



**D**rainage

**S**ystem

**S**olution