



CONTROLLED ENVIRONMENT SPECIALISTS



Excellence | Passion | Connectedness | Integrity



CRC – GROUP : CONNECTED ABROAD

40 YEARS

ENGINEERING CONTROLLED
ENVIRONMENTS



GERMANY

CRC

BELGIUM

CRC
E N G I N E E R I N G

INDIA

PTd
**Cleantech
Solutions**
a CRC Engineering company

120
EMPLOYEES

€ 20m
TURNOVER

>1800
PROJECTS



EXPIERIENCE OF FOUNDER



Pieter Doms

CEO and MD

MIETEC – ALCATEL

1983 – Lead facilities design FAB I

1984 – Construction manager FAB I

1985 – Facilities Manager

1988 – Manufacturing Manager

1991 – Project Manager FAB II

1994 – Director Operations

CRC

1998 – Founder CRC Belgium Branch

2005 – Co-General Manager CRC Germany

2013 – Founder CRC Engineering Belgium

2018 – Founder PTD Cleantech Solutions



WE CATER OUR ENGINEERING SERVICES TO VARIOUS SECTORS



HI TECH



SEMICONDUCTOR



OPTOELECTRONIC



LASER TECH /
PHOTO VOLTAIC



BATTERY / CELL

LIFE SCIENCES



PHARMACEUTICAL



MEDICAL PACKING



MEDICAL DEVICES



BIOTECHNOLOGY

FOOD & COSMETICS



STARCH
PROCESSING



CHOCOLATES



MALT
PROCESSING



SEMI SOLIDS

EPCM-V Services



ENGINEERING

- Feasibility study
- Concept to Detail design
- Detailed 3D modelling
- Procurement support
- Construction management
- Project Management



VALIDATION

- Validation policies
- URS-GMP review analysis
- Risk – Impact assessment
- FAT/SAT commissioning
- Qualification (DQ, IQ, OQ and PQ)





EPCM SCOPE

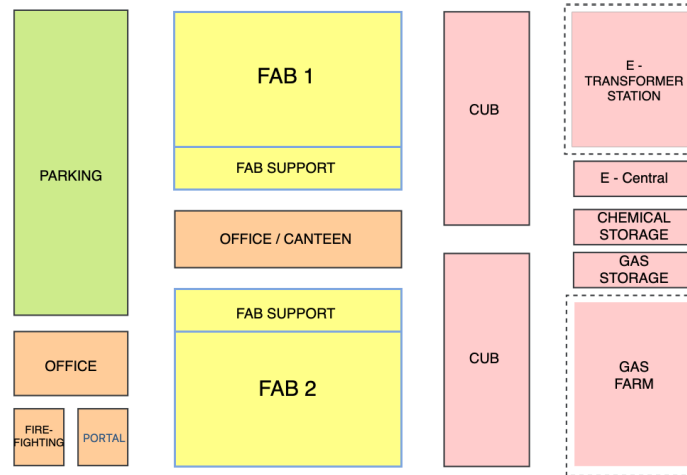
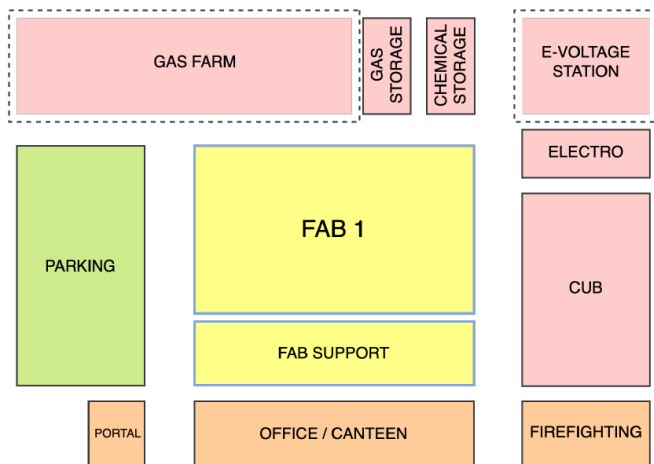
- Site Layout
- Building
- Lay-out
- Clean Room
- HVAC
- Clean Utilities
- Black Utilities
- BMS
- Safety and security



MASTER LAYOUT PLANNING



Master layout planning and conceptual planning is done keeping in mind the ergonomics and future expansion.

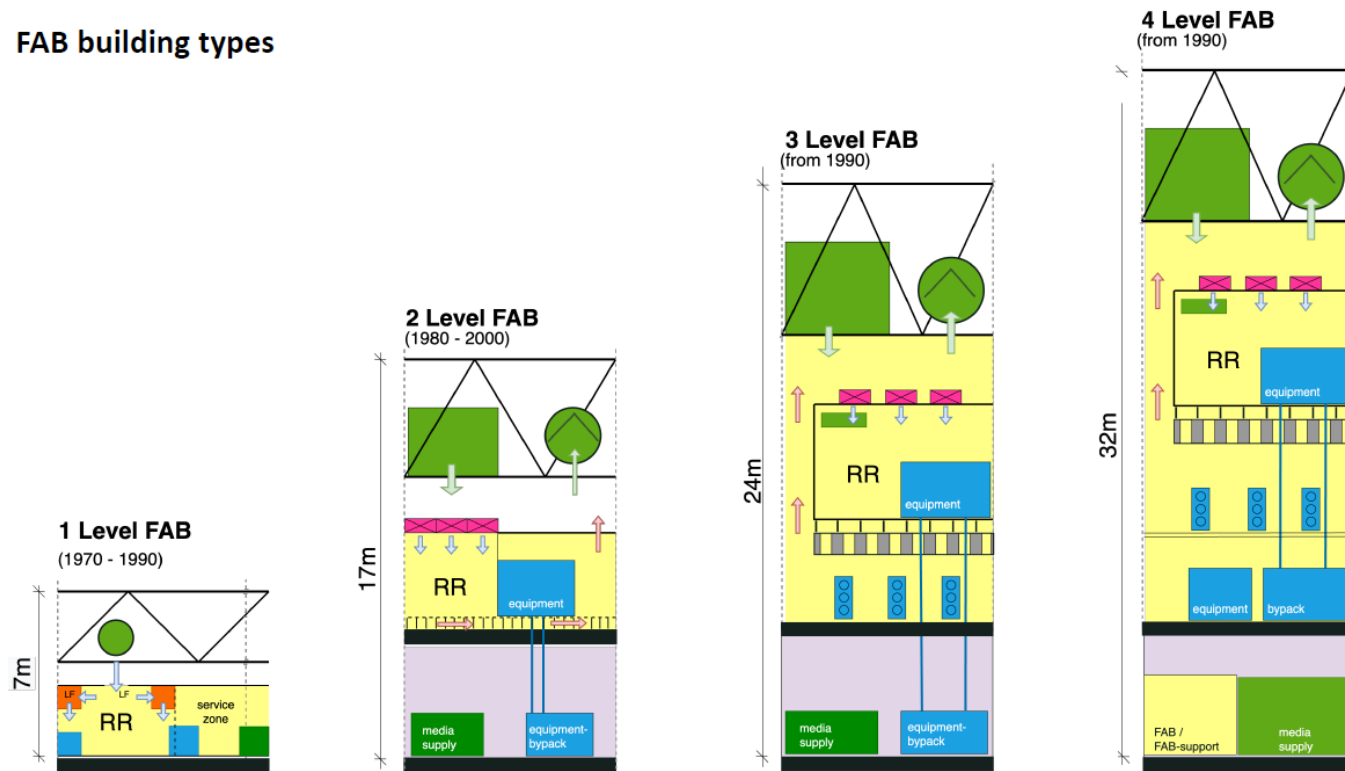




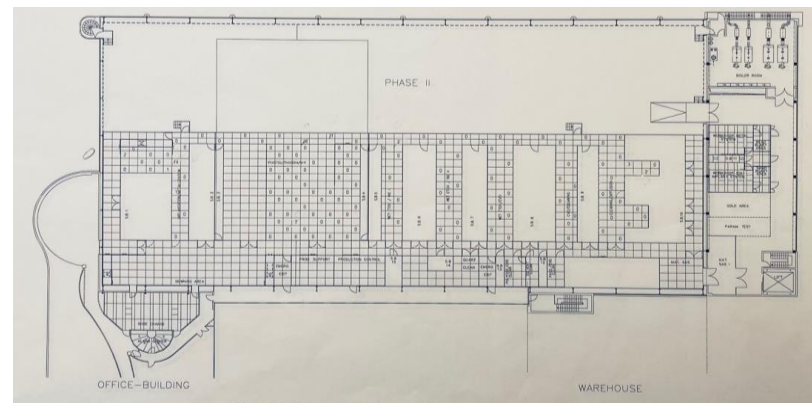
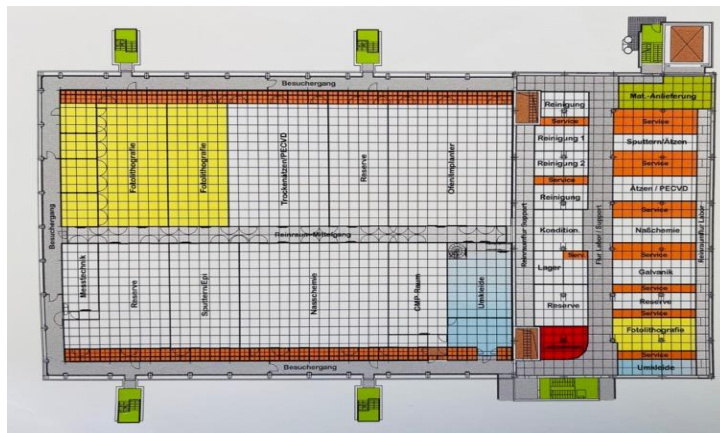
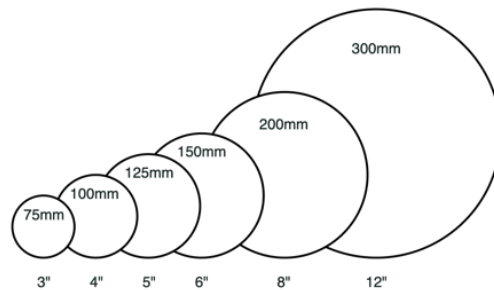
BUILDING CONCEPTS

We have been designing semiconductor facilities over time with evolutions of building concepts

FAB building types



- The product
- The technology of production
- Overall space availability

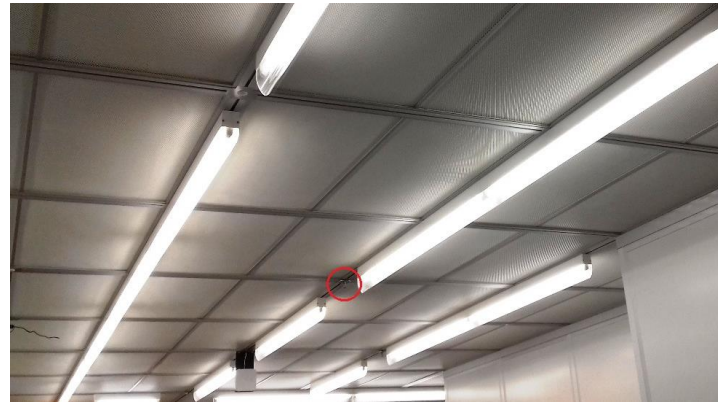
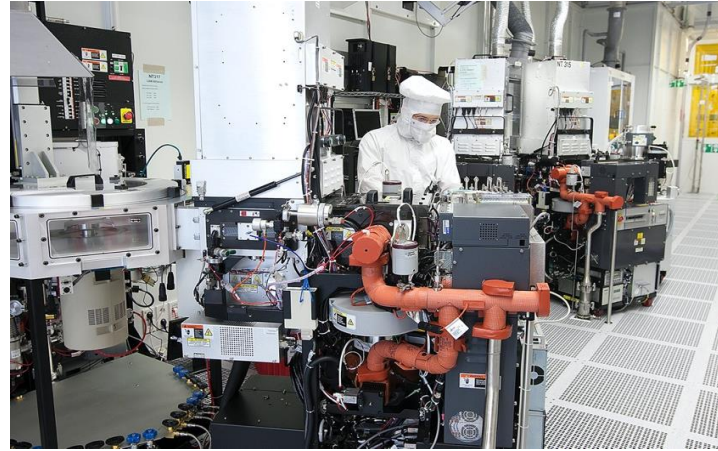




CLEAN ROOM

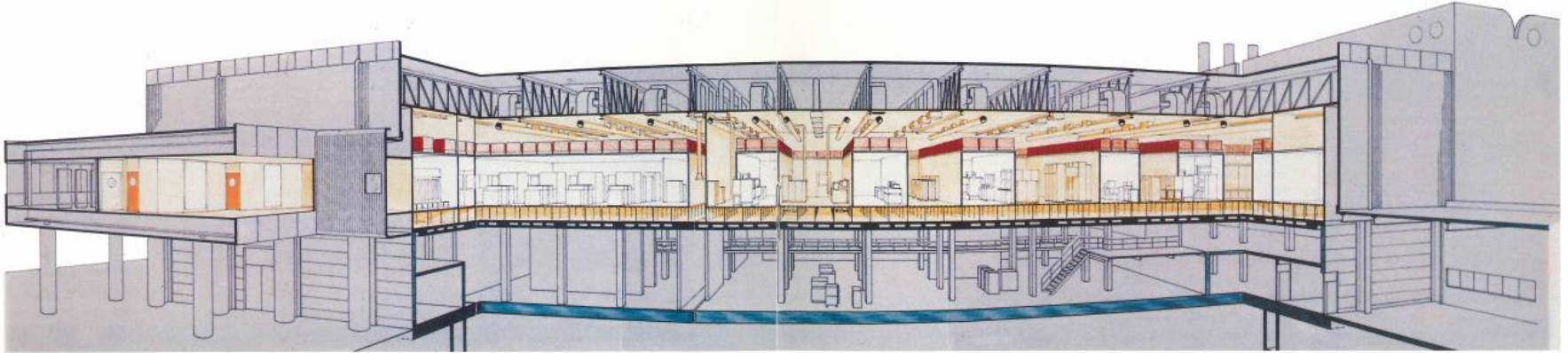


We have designed clean rooms for semiconductor manufacturing and research facilities in class ranges of Class 100 (stringent manufacturing and R&D) to Class 100000 (outside packing)



VENTILATION

Ventilation being the primary and most important component of clean room design, we ensure that most optimum and operation friendly ventilation system is designed and realised.





CLEAN UTILITIES



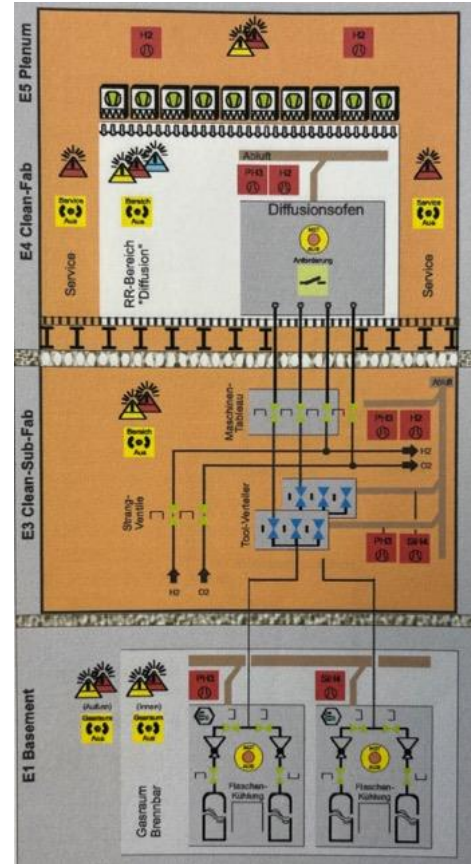
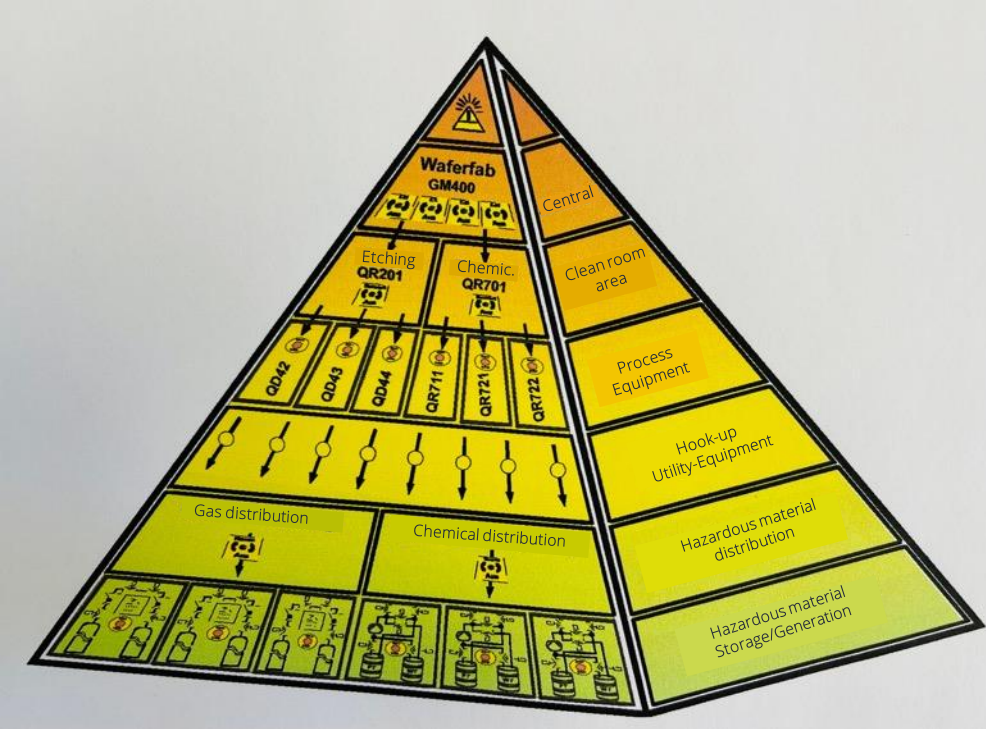
Design of utilities (generation/distribution) coming in contact with the product



Design of utilities auxiliary to the production process



Safety system is designed considering minimum loss of time of production and selective isolation/evacuation.



REFERENCES

 imec

 BOSCH

 VISHAY®

 Wolfspeed®

 BelGaN

 infineon

 JENOPTIK

 Xenics
Infrared Solutions

 EPFL

 KU LEUVEN

 ABB

 NORTEL



REFERENCES



New construction 8" Silicon Carbide (SiC) Wafer Fab, Saarland Germany

Client : WolfSpeed

Services : Engineering, Procurement Assistance and Construction Management in Partnership with Drees & Sommer

User requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning

Figures : Clean room space – 16,500sqm. Date : 2022-2025

Description: 200mm wafer size, Silicon Carbide



New construction 12" Wafer Fab, Itzehoe Germany

Client : Vishay Siliconix Itzehoe GmbH

Services : Engineering, Procurement Assistance and Construction Management

User requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning + equipment hook-up

Figures : Clean room space – 4000sqm. Date : 2021-2025

Description: 300mm wafer size, MOSFET



REFERENCES



New center for cutting-edge technology, Memmingen Germany

Client : Rohde & Schwarz GmbH & Co. KG

Services : Engineering, Procurement Assistance and Construction Management
User Requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning

Figures : Size 18000 sqm. Clean room space – 5000 sqm. Date : 2021-2025

Description: New clean room production building as manufacturing center for complex appliance and measurement techniques, equipment, microelectronics and drone defense systems in Memmingen



Extension 12" Wafer Fab R B 300, Dresden Germany

Client : Robert Bosch GmbH

Services : Engineering, Procurement Assistance and Construction Management
User requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning + equipment hook-up

Figures : Clean room space – 4000 sqm. Date : 2022-2024

Description: 300mm wafer size

REFERENCES



New production facility for micro-optics and sensor, Dresden Germany

Client : Jenoptik AG

Services : Engineering, Procurement Assistance and Construction Management
User Requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning

Figures : Clean room space – 2000 sqm. Date : 2021-2025

Description: Lithography, optoelectronic



New production area 4, Ditzingen Germany

Client : Trumpf AG

Services : Engineering, Procurement Assistance and Construction Management
User requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning

Figures : Clean room space – 5000 sqm. Date : 2018-2022

Description: New production building including three clean rooms



REFERENCES



New construction 12" Wafer Fab, Villach Austria

- Client :** Infineon Technologies Austria AG
- Services :** Engineering, Procurement Assistance and Construction Management
User Requirements, pre-design, concept design, permitting design, tender, contract awarding + layout planning
- Figures :** Space – 84,000 sqm Clean room space – 16,000 sqm. Date : 2018-2022
- Description:** 300mm wafer size, CMOS



New construction and remodeling 6" and 8" Wafer Fabs, Reutlingen Germany

- Client :** Robert Bosch GmbH
- Services :** Engineering, Procurement Assistance and Construction Management
User requirements, pre-design, concept design, permitting design, detail design, tender, contract awarding, construction management + layout planning + equipment hook-up
- Figures :** Clean room space – 32,000 sqm. Date : 1993-today (continuous projects)
- Description:** At the Bosch semiconductor front-end site in Reutlingen, CRC has been planning since 1993. During this period, CRC has constructed approx 32,000sqm of new clean room space. In addition, there are ongoing renovations in the existing facilities to meet the current technological requirements.



REFERENCES



Fab 3 expansion, Leuven Belgium

Client : IMEC

Services : Engineering, Procurement Assistance and Construction Management in partnership with ISG
BIM Management, 3D scanning, pre-design, detail design, construction management support + commissioning support

Figures : Clean room space – 2000 sqm. Date : 2022-2023

Description: R&D center. Expansion of existing clean room and associated installation serving the existing clean rooms.



Fab 1 GaN 6" fab remodelling, Oudenaarde Belgium

Client : On Semiconductor (Now BelGan)

Services : Engineering, Procurement Assistance and Construction Management
User Requirement, Pre-design, detail design, tender, contract awarding, construction management, commissioning support, validation + layout planning + equipment hook-up

Figures : New Clean room space – 300 sqm. (old was remodeled) Date : 2012-2015

Description: 150mm wafer size, GaN. In order to stay up to date with technology, On semiconductor wanted to revamp their existing facility built in 1983. CRC has been involved in this remodeling right from user requirement up to validation.



REFERENCES



Fab 1 remodeling, Leuven Belgium

Client : IMEC

Services : Engineering, Procurement Assistance and Construction Management
Feasibility study, pre-design, detail design, construction management, commissioning support

Figures : Clean room space – 5200 sqm. Date : 2019-2022

Description: R&D center. IMEC wanted to Revamp their existing clean room facility from the perspective of technology update and energy efficiency, with least effect to ongoing operations and associated installations.



THANK YOU



a CRC Engineering company

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