



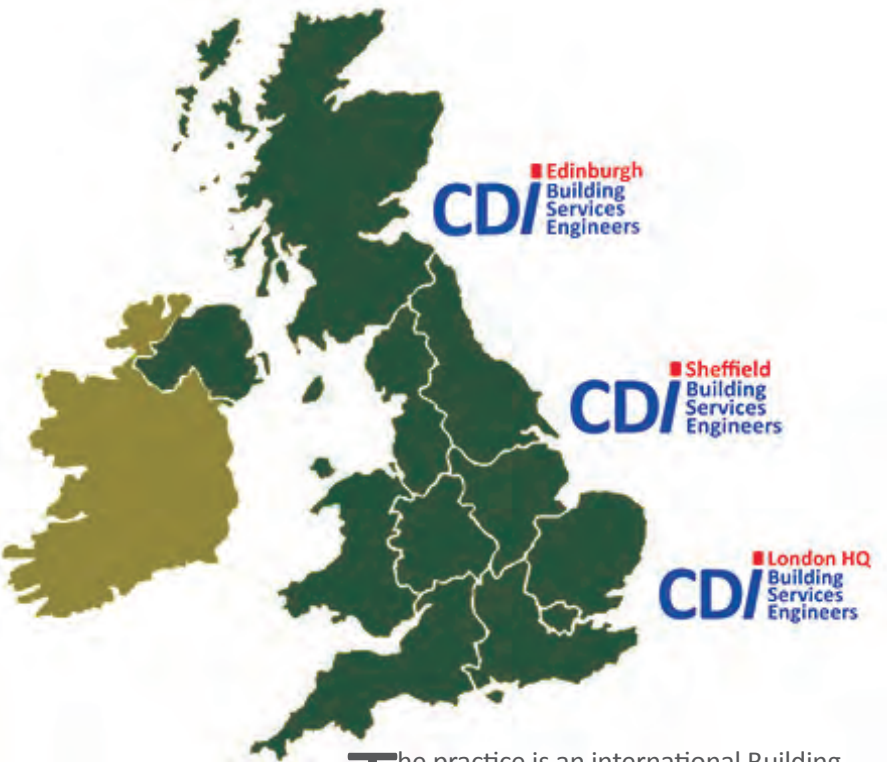
Retail Sector Projects

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About CD International /



The practice is an international Building Services Consulting Engineers having completed award winning projects throughout Europe with construction values up to £300 million.

Location

The company has offices in London, Edinburgh and Sheffield with associate partners throughout Central and Eastern Europe, Central Asia and the U.S.

Sectors

Market strategy has been committed to developing consultancy appointments throughout all areas of the commercial sector including:

- Mixed-use & Retail
- Leisure and entertainment
- Office & tech hubs
- Hotel & Resorts
- Residential
- Listed & Heritage

The business strategy is also focused on a European and worldwide operation with a number of major projects successfully completed in continental Europe, Africa and the Middle East.

Working with lead architects and local partners on international schemes, we developed unique experience and ability to combine knowledge from various practices and implement it into the real project.

Services

The company offers a full range of professional services which can be individually tailored to meet specific client needs as follows:

- Mechanical Design
- Electrical Design
- Public Health Design
- Fire Protection and Life Safety
- Vertical Transportation
- Infrastructure
- Low energy design
- IT communication
- Low Carbon Energy assessment
- BREEAM assessments
- Thermal Modelling
- Energy audits and energy appraisals

Structure and Experience /



Working closely with architects and local specialists, we implement the latest technologies and modern approach to deliver comfortable and sustainable living environments.

Structure

- Project Directors remain an integral part of the design process.
- Shortened communication channels ensure a fast response time
- Project teams capable of handling a wide range of project types
- Individual groups draw upon the shared experience and resources within the company.

Mixed use projects

CD International engineers have been working under the multiple projects in mixed use and residential environment for the past 25 year.

We have highly qualified team, with experience in design of building services for developments in Europe, including Russia, Ukraine, Bulgaria, Albania and the UK.

Experience

We have got strong technical engineering understanding of the projects in all building sectors and across many countries.

Geography of works

- Albania
- Armenia
- Belarus
- Croatia
- Czech Republic
- France
- Germany
- Macedonia
- Moldova
- Montenegro
- Poland
- Russia
- Serbia
- Ukraine
- England, Scotland & Wales
- Kyrgyzstan
- Kazakhstan
- Lebanon



Mega Silk Way, Astana



Piran Meadows Resort



Hawkchurch Resort

BIM /

BIM encourages collaboration and increased levels of design development during design work. Our design team and clients are able to make more informed and concise decisions at earlier stages which reduce the level of redesign and rework later and in turn the cost associated with change orders.

Ensure a common data environment is in place, where all structured information is stored and exchanged during design and construction phases.

BIM has improved design delivery process by encouraging collaboration, improving information exchange and providing an ability to test building performance. We work closely with our clients to set clear BIM objectives for each project.

We utilise energy modelling to analyse the performance of buildings. Thermal modelling also assist in demonstrating which solutions provide the best life cycle return.

We have provided in-house course for Revit® for all CDI personnel, and all our engineers went through in-depth course training.

We have been implementing Revit® and IES-VE® for the projects in the UK and especially abroad, where multinational design teams get involved.

Role of international consultant /



There are a number of significant advantages in incorporating the input of an International Consultant, particularly during the initial Concept and Schematic phases of the project. The principle advantages are as follows:

Maximising lettable value

The design of the MEP systems can have a significant effect on reducing net lettable area. The positioning of vertical and horizontal services distribution can also have a detrimental effect for future tenant fit-out programme. The understanding of the maximum rental value is an important factor in designing of laying out the services installations.

Flexibility

The understanding of the future layouts of the shop units, and in particular how these might change during the course of the project construction, and after The Retail Centre opening, is an important factor in the design of the MEP systems.

This needs to ensure that the future adaptation of the shop unit sizes can be undertaken relatively easily. The design and sizing of the principle service intakes for the shop units also need to make consideration for the future adaptations to the shop unit sizes.

Sustainability

The future retail schemes are embracing greater importance on the sustainability aspects. This is primarily driven through the need to ensure that energy running costs are kept to a minimum, and that some of the aspects of sustainability can reduce the overall capital expenditure of a project.

Integration

The design of the MEP systems needs to be carefully integrated into the overall structural and architectural design for the building. There are many examples where this has not been achieved resulting in poor visibility and sight lines of retail shop units within the Mall.

Cost Benefit

The input of an International Consultant who has experience on a wide range of retail and leisure developments ensures that the most appropriate cost solution is implemented. This considers both the distribution of services and the selection of main equipment.

Local Codes

The International Consultant needs to have a reasonable knowledge of the local norms/SNIPS in order that the proposed solutions can be implemented within the project. This will also need input from a Local designer/Fire advisor, to ensure that the proposed scheme can meet with the local authorities approval.

Retail Operations

The input from an International Consultant ensures that the MEP services design incorporates the needs for the future Centre operations. This is achieved through the knowledge from completing a number of Retail Centres, and working with the facilities Management Team in the operation of the Retail Centres.

Innovation in Retail/

Low Energy Solutions

Retail developments require reasonably large volumes of fresh air and cooling loads to provide satisfactory customer environments. This has led to more innovative ways to recycle energy and use renewable energy.

Our task is to bring design of building services systems to the next level. Our specialist retail knowledge contribution would ensure the following parameters are achieved:

- net gross/lettable is maximised;
- future flexibility for retail layouts;
- commercially driven design;
- implementation for future operational requirements of the retail centre;
- use of free cooling and heat recovery;

Energy Modelling

We utilise energy modelling to analyse the performance of buildings. Thermal modelling also assist in demonstrating which solutions provide the best life cycle return

Sustainability

Solutions that consider the whole sustainability approach review all material, recycling, waste management, water consumption and environmental impact of a development BREEAM Retail addresses a range of these issues but does not necessarily propose solutions which enhance the sustainable credentials. As BREEAM Retail assessors we believe that we combine the creative solution driven sustainable approach with the process driven BREEAM Assessment.





*Client: Mega Management
Architect: Chapman Taylor Partners
Services Design: CD International BSE, UK*

Retail / Kazakhstan

Astana / Mega Silk Way

The MEGA Silk Way is the largest shopping centre in Kazakhstan and is located in the capital Nur-Sultan near the territory of EXPO 2017. The building covers over 140,000 m² and is serviced by its own management company with over 120 staff.

Project Outline

The Mega Plaza site is an east-west axial connection from the core EXPO facilities to Nazarbayev University. The EXPO will be an important expression of the nation and its sustainable future.

MEP Systems

CDI has completed Concept and schematic stage design for MEP services.

We have utilised building modelling software REVIT® in order to design efficient systems.

Considering the volume of the shopping mall's internal space is more than 1.5 million m³, and annual temperature ranging in Nur-Sultan – from +45°C to -40°C, the building is very energy efficient. The bioclimatic design reduces energy consumption for heating and air conditioning.

The building uses supply and exhaust units with a heat recovery and run by BEMS. The building and surrounding area are lit by about 4,800 LED luminaires. Luminaires powered by renewable energy are used to illuminate an open car park



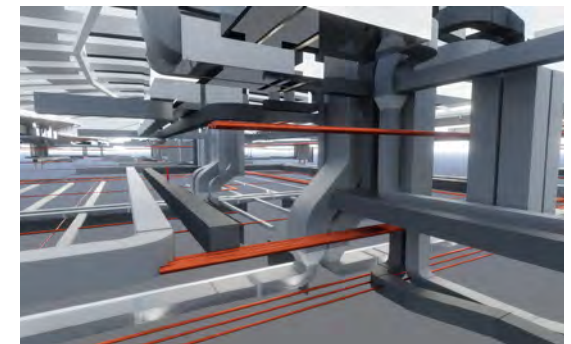
Concept design by CTP



REVIT model of MEP services



REVIT model of MEP services



REVIT model of MEP services



Construction site in summer 2016



Centre is ready for EXPO 2017



Client: Forth Ports

Design: Conran & Partners / Keppie Architects

PM/QS: Heery International / Davis Langdon

MEP: CD International

Retail and Entertainment / Scotland

Leith / Ocean Terminal

Design for a new retail and entertainment centre in Leith, Edinburgh and the overall master planning of infrastructure to the area development plan.

Project Outline

The retail concept comprises a three level linear mall providing approximately 48,000m² of retail space. The leisure complex comprises of 10,000m² of restaurants, cinema and entertainment centre at third floor level, with direct 24 hour access from the mall and a high quality multi-level food court.

Infrastructure

The scheme is developed on a brown field former dockyard site which had no existing infrastructure hence the infrastructure requirements and planning had to be carried out for a site electrical load of 25MW to include 20,000 m² of office development and liner docking facility as the port of Leith is visited by 30-35 ocean liners each year.



Royal Yacht Britannia

Project included design and supervision of the MEP installation to FRY Britannia and an associated Visitors Centre, which completed in 1998 following an intensive six month contract period.

The fit out of the FRY Britannia required imaginative design solutions to integrate the environmental systems within the existing structure of the ship. In particular this required careful coordination to limit the disturbance to the existing frame.

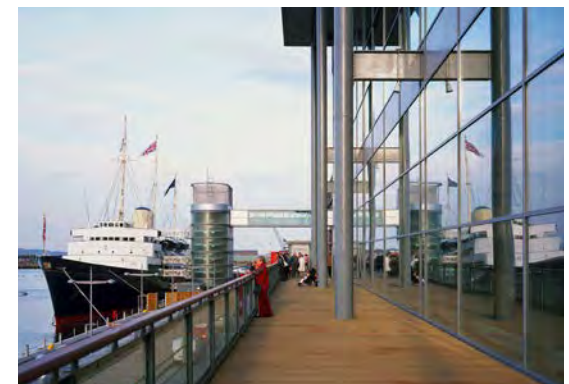
The project also included the design of the MEP installations to the Visitors Centre which acts as an exhibition space before visitors board the ship.

Systems design

The mall is heated and ventilated using a highly efficient displacement ventilation scheme which utilizes a high degree of free cooling and requires lower air volumes and velocities

Technical Systems

- 4 No. roof top sub stations
- 2 No standby generators
- Networked addressable fire alarm system
- CCTV system
- Fully integrated BMS
- Car Park control / payment system
- Displacement ventilation system
- UHF radio network
- Comprehensive smoke control system





Client: FI Real Estate Management
 Architect: DLA Architecture
 MEP: CD International

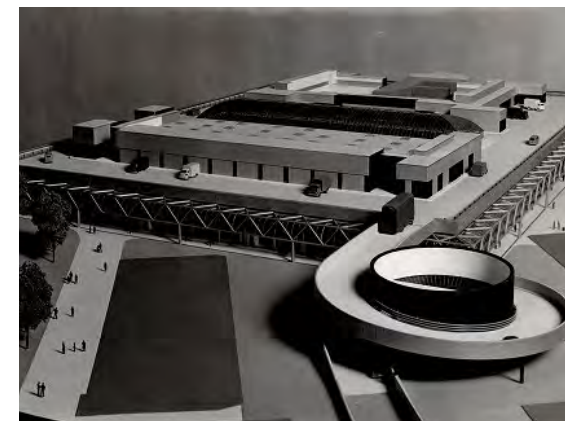
Retail / Wiltshire

Swindon / The Brunel Shopping Centre

The Brunel Centre was first built in 1978, revamped in the 1990s and was turned into Arcade and Plaza. It was one of the first to have shops-facing outwards into the neighbouring streets, a revolutionary idea was to get rid of the delivery lorries by putting a delivery deck on the roof with arrival and departure spirals on two side streets.

Project Outline

The introduction of the food course zone “Crossing” is intended to offer customers a new experience by providing a new and improved food offer within the existing shopping centre. The location of the “Crossing” has been carefully selected to strengthen the links between the Arcade and the Plaza elements of the Shopping Centre by utilising the existing first floor bridge link.





The proposed alterations facilitate several different food operators to be sited together to create an active, vibrant zone at the heart of the centre. It is intended that the food cluster will create its own identity to compliment the rest of the Brunel.



A key element to the success of the proposals is the introduction of a new access directly from Canal Walk via an enclosed up only escalator which discharges directly into the heart of the new development area.

We have undertaken the initial feasibility stage and assisted in schematic design development, which has been supporting the overall financial viability of the project, as well as the Planning submission.





*Client: MPC Properties, Belgrade
Architect: Chapman Taylor, Düsseldorf
MEP: CD International, London*

Retail / Serbia

Belgrade / IPM Mall

Serbia's retail segment is enjoying a steady growth in the number of new buildings being constructed and currently seeing a fresh investment cycle of the construction of large shopping malls. Our client, MPC Properties is one of Serbia's largest real estate development companies.

Project Outline

IPM Shopping centre will bring to the Serbian market a modern shopping center, 44, 000 GLA over 3 levels with over 150 stores, restaurants and leisure, green spaces and a parking for 1250 vehicles. Completion of the project is scheduled for autumn 2019.

New concept of construction and design has been implemented for this project, design by Düsseldorf office of Chapman Taylor.



CDI have a building services design supervision duties that include Initial strategic design options for HVAC systems and lighting. During the Concept stage we work very closely with the client and local engineers, initially providing sketches to illustrate alternative options for servicing, which will improve tenant flexibility and commercial value.

We provided principal services distribution including location of all HVAC main ducts and thermal modelling.



Client: MANE TCI, Albania

Design: LaguardaLow Architects, USA

Main Contractor: TESYAP, Turkey

Structural Engineer: Conisbee, UK

Services Design: CD International BSE, UK

Retail Development / Albania

Tirana/ East Gate

The Mall situated in Lundër, Farka County, 4 km south-east of Tirana, capital city of Albania. With GLA of 39,000m² and parking spaces for over 1600 cars, the new shopping centre will be the largest western-style mall in Albania.

Project Outline

The Mall is divided into four courts each based on the world areas: Europe, East (India), Far East (China) and Albania. Each court is decorated to resemble culture each of these areas with beautifully decorated ceilings, sculptures and displays.

Engineers CD International provided Detailed Design package for M&E Design.

MEP Systems outline

Chilled water /Hot water are distributed throughout the shopping centre to provide cooling/heating for tenant's retail units, anchor's plant areas, mall air-handling units and the centre management suite.

Mall ventilation is provided via a mixing ventilation system. Mall AHUs incorporate heating and cooling coils served by the CHW and HW systems, heat recovery from the mall extract ventilation system via integral thermal wheel and water heat recovery circuit.

Smoke ventilation is provided naturally via automatic louvres at high level throughout the mall.

Main power supplies to the building is derived from a 20kV feeder network to provide supplies to two incoming MV switchrooms.

Lighting is controlled by a central lighting management control system.



Tirana/ East Gate



All MEP systems were design to maximise net lettable area.

"We are pleased to support the development of modern retail facilities in Albania. The East Gate shopping mall will bring a new, higher-quality shopping experience and help transform Tirana's suburbs into modern hubs..."

*Sylvia Gansser-Potts,
Director of the Property & Tourism Team at the EBRD.*

Sustainability

During design stages, CD International undertook Renewable energy study and evaluation of Sustainable Energy Investment opportunity for EBRD Bank, who provided long-term facility for the construction of the centre. We have indicated best renewable technologies, appropriate for the project, which were implemented in the building.

Solar Power

Albania has significant potential for renewable resources in the form of solar -250 days of sunshine a year, therefore solar powered domestic water heating and photovoltaic panels to generate electricity are considered for East Gate Development.

Rainwater Harvesting

Harvesting rainwater is an excellent renewable technology which is used to provide filtered water. To enhance sustainability, water conservation measures were suggested, such as water efficient equipment, elimination of leakage and overall improvement of house-keeping / maintenance.

Other technologies

- Ground source heat pumps
- Wind turbines
- Waste Management & Recycling
- Energy metering
- Borehole for Potable Water Supply
- "Free-cooling" for mall area
- Heat Recovery.





*Client: Stadium Retail Investments Ltd
Services Design: CD International BSE, UK
Contractor: Marshall*

Retail Parks / UK

Stadium Developments/ Retail park projects

CD International has a long time collaboration with Stadium Developments, the one of the biggest retail parks developer in the UK. We have completed building services design, provided sustainability strategy for seven retail parks across the UK.

Llandudno Retail Park, Wales

CDInternational provided load assessment of retail park.

Undertook design of utility services and infrastructure to site and design of Car park lighting and traffic management system.



Entrance at Parc Llandudno Retail Park



Retail Park Developments /

Parc Trostre, Wales

Existing retail park was upgraded and extended. Load assessment was provided for the proposed development. Diversions of existing services to allow for construction of units together with co-ordination of incoming supplies to the units including the substations and transformers.

Engineers undertook Part L assessment and energy study for the site including energy performance certificates for the tenants.

Design of all landlords services including car park and architectural lighting to the retail park.



Retailers at Parc Trostre, Wales

Orchard Retail Park, Hull

CDI was responsible for carrying out load assessments and the procurement of the utility services on behalf of the client.

Energy assessment for the site to insure building compliance. This includes the construction of a thermal model using IES thermal modelling software. Our engineers constructed a model of the retail park to determine the energy consumption of the proposed shell and core retail units.

Scheme is currently (December 2012) on site.



Solar penetration assessment for Orchard Retail Park

Newport Retail Park, Wales

Project is an out-of-town shopping centre in the city of Newport, South Wales. CD International has carried out the design of all landlords services including car park and architectural lighting to the retail park. Provided load assessment of proposed development and coordination incoming supplies to the units including the substations and transformers.

We have also undertaken diversions of existing services to allow for construction of units and provided Part L assessment and energy study for the site. Including energy performance certificates for the tenants.



TESCO food anchor at Newport Retail Park



*Developer: Expert Capital S.A.
Services Design: CD International BSE, UK*

Mixed Use / Ukraine

Kiev / Lukhyanovka

Mixed use development consist of 4 storey of retail centre, basement and roof top parking , plus hotel and residential parts. The Site is located at quarter which bound of Dehtiarivska, Berdychivska and Kopernika Streets in Kyiv City centre.

Project outline

CD International has been appointed to undertake Concept, Schematic and oversee Detail Design for this Mixed Use development. Areas include hypermarket, shopping mall, cinema and restaurants with total GLA 45,000m², hotel 6,800m² and residential block of 17,650m².



Kiev / Lukhyanovka

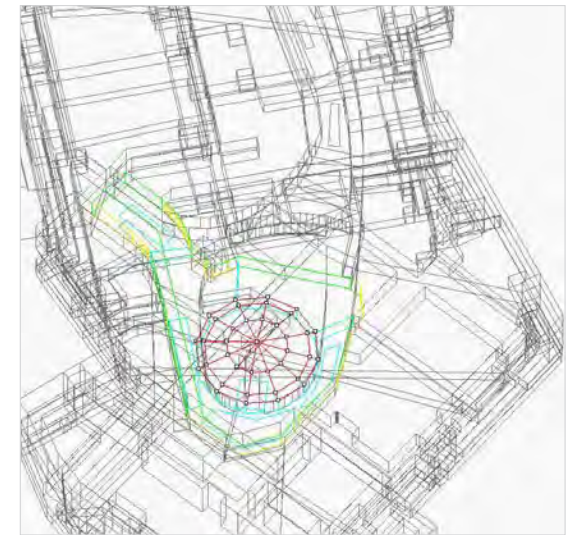
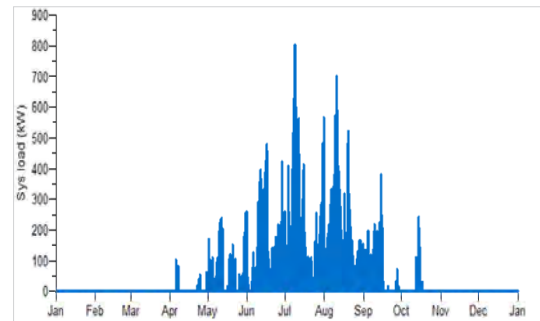
MEP Systems

The MEP systems include basement car park ventilation, mall ventilation, cooling and heating, electrical services, life safety systems, smoke ventilation and public health drainage.

A thermal model was developed to analyse the overall heating and cooling load.

Special conditions

The limitations of the electrical power supply to the site required to minimize the electrical load for cooling. This is achieved by the use of an ice storage system, so the cooling capacity is stored all night and discharged during a day.





*Investor: Comfort Market Lux
Developer: Arricano Development LLC
Services Design: CD International BSE, UK*

Retail / Ukraine

Kiev / Prospekt



Project outline

Shopping and Entertainment Centre PROSPECT is one of the largest developments on the left bank of river Dnipro in the capital of Ukraine.

Total GLA is 30,400 sqm plus 11,000 sqm occupied by Auchan. First level occupied by fashion retailers, second, is supermarket and entertainment zone, including seven-hall cinema Multiplex, designed for more than 1000 visitors.



Kiev / Prospekt

MEP Systems outline

Chilled water /Hot water are distributed throughout the shopping centre to provide cooling/heating for tenant's retail units, anchor's plant areas, mall air-handling units and the centre management suite.

Thermal modelling

The food court was modelled in our software design package to review the cooling and heating loads. The mall air distribution was also modelled to review that the location of the bulkhead diffusers would effectively distribute the supply air in the mall.





*Client: Panorama Group, Estonia
Design: Chapman Taylor, Ukraine
Services Design: CD International BSE, UK*

Retail Development / Ukraine

Kiev / Sky Mall

SkyMall, when complete, will be Kiev's largest shopping centre. The site forms the remainder of the island peninsula in the middle of the Dnepr river which bisects Kiev.

Project Outline

SkyMall Phase 2 will add approximately 35,000 m² GLA of new retail and entertainment space, plus an 11,000 m² stand-alone DIY store.

Additionally, 9,000 m² of residential apartments in 2 blocks of tapering height will further strengthen the location, and will provide a wide range of new facilities.

Engineers CD International were to provide Concept, Schematic package for M&E Design.





*Developer: Belmart Plaza LLC
Design: Chapman Taylor Architects
Services Design: CD International BSE, UK*

Retail / Belarus

Minsk / Palazzo Mall



CD International has completed Concept and Schematic for MEP building services design for a retail development Palazzo Mall, located on the main motorway entering the city of Minsk.

Project outline

The new development 50,000m² will comprise of a 4 level retail center. The ground level will be substantially occupied by a Supermarket, with the proportion of the area allocated for back of house areas.

The first and second floor will be primarily retail space and the third floor is currently identified for a cinema and ten pin bowling.

There is a stand alone multi-storey car park which has been constructed.

MEP Systems outline

Chilled water /Hot water are distributed throughout the shopping centre to provide cooling/heating for tenant's retail units, anchor's plant areas, mall air-handling units and the centre management suite.



*Client: Ocean Atlantic
Architect: AVCI Architects
M&E: CD International, London*

Retail / Serbia

Novi Sad / Mosaic City Mall

First international style Shopping and entertainment Centre in the second biggest city of Serbia - Novi Sad.

GBA—85,000sqm.

GLA – 50,000sqm

Project Outline

River Plaza will accommodate Retail and Supermarket, food court and restaurants; cinema, bowling and children's play ground – over three levels.

Shopping centre is situated in the attractive area of the city, on the main road connecting international highway (Belgrade-Budapest) and downtown area.





*Client: JV Balfin Group & Fashion Group
Architect: LaguardaLow, US
MEP: CD International*

Retail / Macedonia

Skopje / City Mall

The Mall has a total of 90,000m², with 39,000m² of leasable area and parking space for 1,300 vehicles. The total shopping mall investment exceeds EUR 100 million; during the construction it provided employment for over 1,000 people and created over 2,000 new jobs.

Project Outline

Based on structural explorations induced by the extreme seismic activity common in the region, the tradition of concrete structure in the region is carried over to the form of the mall but through a series of unconventional means that aim to test the known limits of the material.

CDI has provided a Concept Design for MEP services and worked in international design team of local consultants, architects and contractors to deliver the project according to requirements.

