BETTER INSIGHT

INTO PEOPLE, FOR PEOPLE

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Colophon

This is a BAM publication

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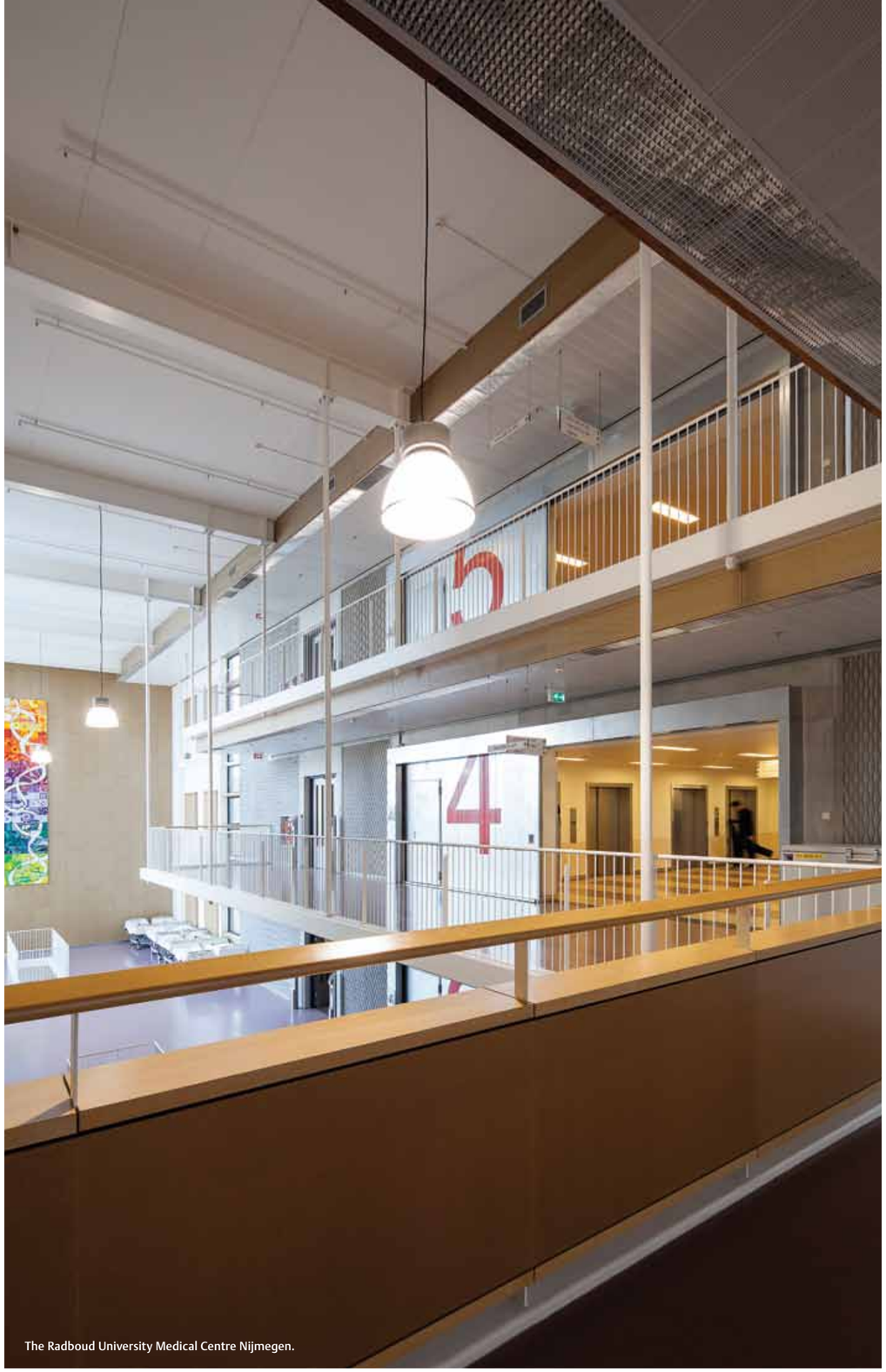

The Radboud University Medical Centre Nijmegen.

FOREWORD

These days the trends and demands in property development in the health care sector go much further than merely building a hospital; it's all about the implementation and realisation of endless factors to satisfy both contemporary issues and the need to be prepared for the future.

Bespoke work, positioning, entrepreneurship

Apart from their specific care duties, today's hospitals also have to cope with all the usual pressures faced by any normal company. Marketing and having a USP have become key concepts. Add to this a plethora of complex strategic and financial factors, competition and value appreciation, property development strategy and the need to make things future proof and it quickly becomes clear that property development in the health care sector will always demand tailor-made solutions. And it's this kind of bespoke work which is BAM's greatest strength; irrespective of the task. 'Just' a hospital, a care boulevard, a shop-in-shop model; for us, the challenge is to strive for the best together with you. Right from the start, from the development of your business case up to and including the actual realisation, and, if required, management and maintenance as well, we pool our strengths, efforts, creativity, experience and innovative approach with yours.

Area development

Apart from being a health care institution, a hospital also exerts a considerable economic influence on its immediate environment. As well as newly built health care institutions, this of course also concerns renovations, expansions and reconstruction work. How attractive are you to your environment? What kind of image would you like to project? What kind of implementations will encourage a successful operation? Will your hospital also become a recognised centre for approved training? And how can this complex whole meet with the varying demands of different stakeholders? Together with you, we can seek out the answers to all of these questions.

Planetree, person-centred

A flexible vision for care and total approach, where the focus is on people. Patients in the driver's seat, ensuring their privacy and that they're made to feel comfortable. At the same time, creating a pleasant and attractive working environment for professionals, where every aspect has been anticipated. Daylight, warm colours and natural features. All good reasons for why we've already built two large hospitals according to the Planetree concept. We've included the hospital Maasziekenhuis Pantein Boxmeer on page 16 as a prime example of this; a clear visualisation of an environment where everything is in line, promoting added value for all the hospital's stakeholders.

Collaboration

Underpinning our work is our knowledge and experience of and our passion for the health care sector and building for the health care sector. BAM employs property development entrepreneurs experienced in the health care sector; specialists who have direct experience in the health care sector and who are able to oversee the entire process from development to handover. They also know exactly when and where things will need adjusting or how they can be further reinforced, whilst keeping a close eye on stakeholder interests. We not just pay lip service to the concepts of collaboration and transparency; for us, these are key conditions to ensure optimum results. Property development in the health care sector is never undertaken to just satisfy current times and demands, it also needs to be future proof.

BAM UTILITEITSBOUW'S VISION

BAM Utiliteitsbouw is a Royal BAM Group subsidiary, with approximately 1,600 employees and an annual turnover of approximately € 750 million. We seek to establish stimulating partnerships with our clients when developing, realising and maintaining their property. We support our clients fully in achieving their ambitions and aims. At the earliest possible stages, we offer our vision and experience regarding the life cycle of a building. We're proactive, develop well-founded proposals, are not shy of taking risks and offer our clients optimum control of the process.

BAM Utiliteitsbouw is a construction company that operates throughout the Netherlands and has a decentralised organisation. Our core business is the development, construction and maintenance of non-residential projects in all sectors. BAM Utiliteitsbouw has ten regional offices and a specialist unit for major projects called Grote Projecten. BAM Utiliteitsbouw Grote Projecten specialises in managing large, complex projects including hospitals and other health care institutions. It also specialises in PPP (Public Private Partnership) projects. We're well aware that the development, construction and maintenance of property in the health care sector requires an entirely different approach than, say, an office building.

Established in 2007, Vitaal ZorgVast is part of BAM Utiliteitsbouw. The Vitaal ZorgVast team includes specialists in the health care property sector and concept and project developers who have a variety of backgrounds, both in construction and the health care sector. This combined force drives our passion for the health care property sector. Sustainability is woven into the very fabric of our company; innovation guides the way we think and behave.

Building a health care institution is by its very nature always bespoke work, both in the period prior to and during actual construction. After all, our work involves interpreting and realising our client's vision of the future; be that a new build or a reconstruction. The result needs to be both distinguished and competitive at all times, for even in the health care sector these demands are part of every brief regarding the design, interpretation and realisation. The sooner we are involved in a project, the more innovative, sustainable, future proof and socially responsible a project can and will be. Given our vision, knowledge and expertise, being on board at the earliest possible opportunity allows us to optimise the life cycle of a building. Anticipating future developments and future maintenance is a must when considering issues of increased efficiency for the benefit of our client. To us, anticipation is a way of working, in short: life cycle thinking. This is not a one sided way of thinking; practical experience has shown that creating a strong collaborative bond between the client, the other parties involved and ourselves often proves invaluable. Anyone can construct a building for a given price. It's the collaboration between people, however, the people who share an aim and vision, which ultimately determines the value of the end result. In concrete terms, for us, this means the result in the longer term, as we don't just build for the here and now; we also build for the future. And that includes all the developments that this may eventually entail.

We're a life cycle partner who listens, who anticipates social and other developments, who puts things into perspective, manages and improves upon things whenever and wherever required. A partner to whom innovation, sustainable construction with the aim of delivering optimum maintenance solutions, whether or not these are risk-bearing, are not just empty slogans, but concepts anchored in our way of thinking, developing and building. Only the highest possible quality will satisfy us; and you.

bam
utiliteitsbouw

Maas Hospital Pantein Boxmeer.

PROFILE ROYAL BAM GROUP NV

Royal BAM Group nv is a successful European construction group and unites operating companies in five home markets with the administrative centre in the Netherlands and is listed at NYSE Euronext Amsterdam. BAM is active in the sectors construction and mechanical and electrical services, civil engineering, property and public private partnerships.

The Group ranks among the largest companies in Europe. BAM has top market positions in the Netherlands, Belgium, the United Kingdom, Ireland and Germany. One of BAM's prominent features is its widespread regional network of offices, meaning that the company is always close to its clients. BAM offers its clients various substantial packages of products and services in the home markets. The Group undertakes specialist construction and civil engineering projects in niche markets worldwide.
With around 25,000 employees, BAM is responsible for the implementation of thousands of projects every year. Some are spectacular (due to their size or technical complexity), but many others are more modest construction contracts.
BAM's philosophy is to offer real value to its clients and work with them in close and lasting co-operation that provides outstanding performance in relation to the maintenance, innovation and expansion of built-up environments. BAM is recognized and acknowledged for the quality and reliability of its products and services as well as for the commitment, knowledge and experience of its employees.

Organisational structure of Royal BAM Group

	Construction and mechanical and electrical services	Civil engineering	Property	Public Private Partnerships
Netherlands	BAM Utiliteitsbouw	BAM Civiel	AM Real Estate Development	BAM PPP
	BAM Woningbouw	BAM Infratechniek		
	BAM Techniek	BAM Rail		
		BAM Wegen		
Belgium	Interbuild	Galère	Kaïros	
		BAM Technics		
		CEI-De Meyer		
United Kingdom	BAM Construction	BAM Nuttal	BAM Properties	
Ireland	BAM Building	BAM Civil	BAM Property	
Germany	BAM Deutschland	W&F Ingenieurbau		
Worldwide	BAM International	BAM International		

Sector | Operating company | Active in this sector

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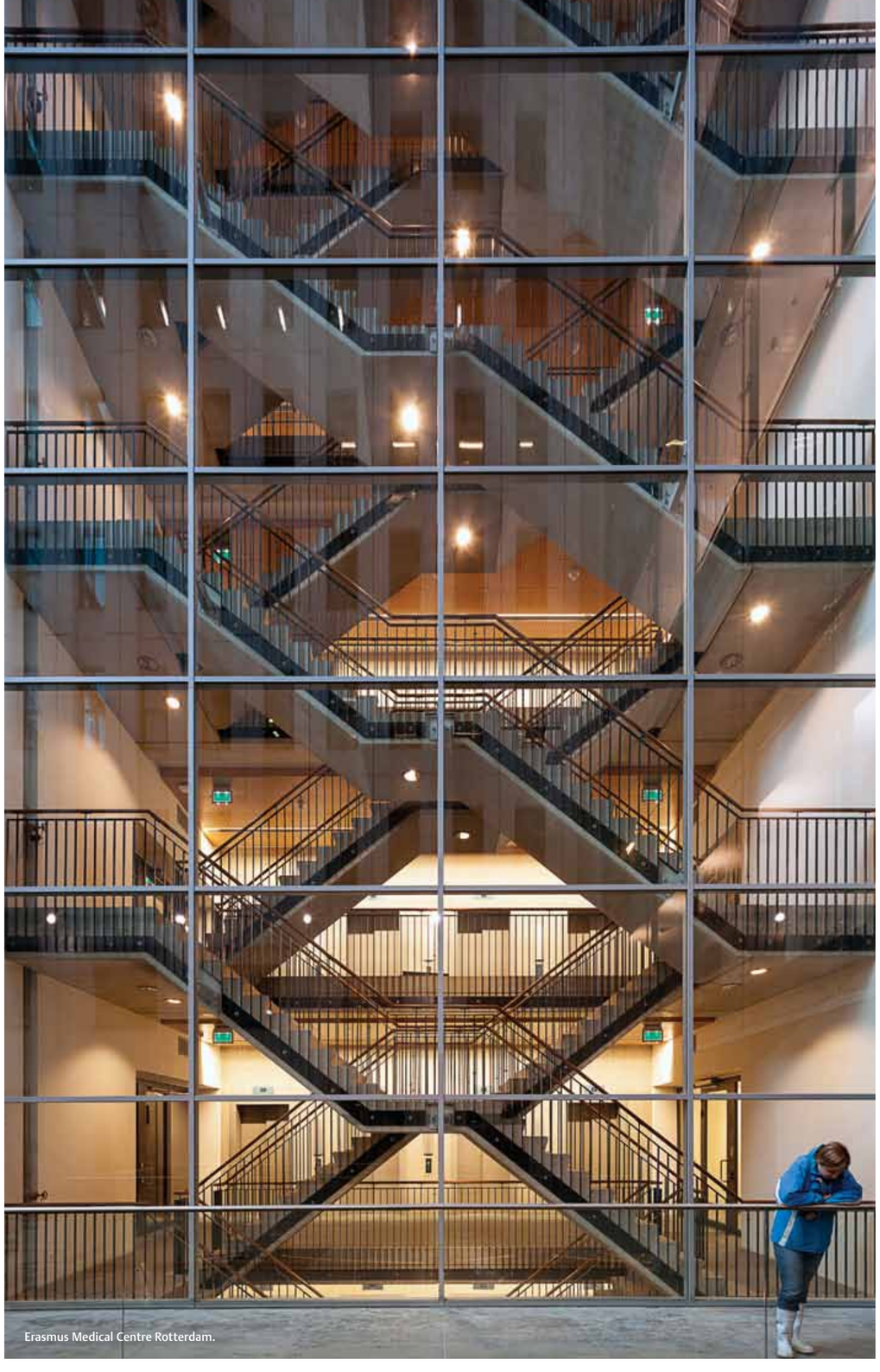

Erasmus Medical Centre Rotterdam.

NEW BUILD

This book is intended to give you an overview, an impression of what is involved in the preparation and realisation of the new hospitals we've built. This includes all the relevant stages, from listening, the consultation and advising, from sketching out ideas to the handover on the delivery date. This often includes state-of-the-art technical systems, and always includes innovative methods of energy use and sustainable material choices. For many projects, we also take care of the maintenance, often as part of long-term agreements that are sometimes risk-bearing. Working according to our Life Cycle Costs method allows us to do this with every confidence. Our Life Cycle Costs method also ensures that the selection and use of materials guarantees an increased efficiency in operation and maintenance. It's not the lowest construction budget that counts, but rather the total costs for the complete life cycle.

At the back of this book, you'll find a selection of BAM Utiliteitsbouw hospital projects which have either been completed in the past 10 years or which are still under construction. A number of hospital projects realised by BAM subsidiaries in Germany and the United Kingdom have also been included.

BAM Utiliteitsbouw possesses the full technical and social knowledge required to realise a large and complex project, such as a hospital, with optimum efficiency. This both in an abstract and in a concrete sense, as a modern hospital needs to be competitive, distinguished, flexible and future proof.

A hospital these days has to meet an entirely different set of priorities, conditions and demands than a hospital did 15 years ago. Market developments, changing health care concepts and approach to patients require different measures and interpretations than when a patient was 'only' a patient. Concepts related to care and care requirements, combined with social developments on the one hand and economic aspects on the other, form the common thread which runs throughout the design and realisation. It underpins everything in between as well, of course.

Key considerations for new build projects include: the availability of different types of financing; rapid, smooth construction at a fixed price; anticipating the experience value of the project; life cycle thinking (Life Cycle Costs) focused on more efficient operation and maintenance; flexibility of the building, bearing in mind possible future developments and a focus on hospital systems and hospital logistics.

Our vision, knowledge, expertise and innovative way of thinking and behaving are invaluable aspects **in practice, which serve to envisage and realise your desires and demands. BAM Utiliteitsbouw is the construction partner who listens, confers and collaborates with you in all matters and at all levels, to realise the new hospital in the way you envisaged it.**

Erasmus Medical Centre Rotterdam.

RENOVATION - EXTENSION - MAINTENANCE

The renovation and extension of a hospital requires a completely different approach from new build. Clear communication is even more important here than with new builds. Agreements which ensure that the hospital can stay open – keeping disturbance to an absolute minimum – need to be cast in stone. A key element in the preparation phase is to apply innovative working and construction methods to avoid disturbing hospital routines. Planning and logistics should be in line with the primary process. The sooner we're involved in the preparation, the better the approach and the solutions will be.

Another aspect is the hospital's environment, particularly if the hospital is located in a city centre. Disturbance and inconvenience to the environment is often unavoidable; it can, however, be steered in the right direction. Here again communication is crucial, in this case with the surrounding residents and neighbours. We will frequently consult with the neighbours and, if required, information for residents will be disseminated regularly in the form of neighbourhood newsletters. This helps to ensure that people are kept abreast of developments and know what to expect within a given timeframe. In our experience, this significantly reduces resistance, avoiding potential delays to the construction programme. Even traffic regulations will be utilised if required to guarantee safety in the immediate environment.

Regarding maintenance, we have extensive experience with long-term maintenance contracts. These are often detailed contracts outlining what the client can and may expect from us; they may also include the financial arrangements. This is to prevent the client from experiencing any future unpleasant financial surprises. This book touches on a number of renovation, extension and maintenance projects that we've realised over the past 10 years or which are still ongoing.

The book will also introduce you to a number of the specific innovative, technical and economic solutions we've instigated and which have been duly informed and reinforced by the strength of our vision and experience to help promote the safe and sound realisation of projects. Key considerations here were/are: complex interwoven problems, minimising construction nuisance for staff and patients as much as possible, opting for state-of-the-art operating theatre complexes and linking existing technical systems in older buildings to the new build.

BAM Utiliteitsbouw possesses comprehensive knowledge and experience in the renovation, extension and maintenance of hospitals. BAM brings a wealth of experience and insight, so you can rest assured that the hospital's processes and routines can continue as normal as much as possible and that your renovation or extension will be future proof.

THEMES

NEW BUILD

- Building to plan and within budget
  Isala Clinics Zwolle page 28 and Maasstad Hospital Rotterdam page 32

- A different type of financing
  Zorgboulevard Rotterdam page 34

- Experience value
  Maas Hospital Pantein Boxmeer page 16 and ZMC Zaandam page 26

- Life Cycle thinking
  Maas Hospital Pantein Boxmeer page 16 and Isala Clinics Zwolle page 28

- Flexibility
  Zorgboulevard Rotterdam page 34 and Master Plan Diakonessenhuis Utrecht page 44

- Continuation of primary processes
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RENOVATION • EXTENSION • MAINTENANCE

- Complex interwoven problems
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- Continuation of primary processes
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- State-of-the-art operating theatre complex and hot floors
  Operating theatre complex at the St. Anna Hospital Geldrop page 20 and IC Centre UMC Utrecht page 22

- Linking technical systems between older and new buildings
  Radboud University Medical Centre Nijmegen page 24

Client

Maasziekenhuis Pantein, Boxmeer

Architect

Bonnema Architecten, Hardegarijp

Consultant

Pieterse Terwel Grevink Advies, Amersfoort

Engineer

Stoel Partners Holding, Zwolle

Construction period

November 2008 - December 2010

Project budget

€ 65 million

Cooperative form

Engineer, Build & Maintain together with 20-year maintenance contract (hospital), Design & Build (parking garage), project development and Design & Build (East building)

MAAS HOSPITAL PANTEIN BOXMEER

Experience value

The unique situation in which the architect, developer, contractor and accommodation consultant conferred with the hospital from day one all the way to the handover, has produced a visible symbiosis between the health care organisation and the building. By focussing on experience value, Maasziekenhuis Pantein has become a healing environment, exuding an intimate and safe atmosphere. Given the expected increase in what is already a relatively large group of older residents in Boxmeer and its environs, this is a vital element for today and definitely also for the future.

The plan was envisaged to link volumes in an open landscape, creating intimate external spaces, e.g. a square, a garden, a street. When organising the buildings, their specific functions were taken as a starting point. Patients are able to view the square from the nursing wards, keeping them connected and involved in everyday life. The garden provides continually changing vistas according to the seasons.

The oval plan of the hospital's elevation, reflected in the parking garage opposite, creates a visual embrace which renders the large square in the centre a clear, safe area. The security is evident both during the day and at night time, thanks to the special lighting plan. Cars are nowhere to be seen as they are concealed behind the façade of the multi-storey car park. Inside the hospital, the departments are laid out in a logical route for those visiting patients. A logical, yet creative use of colours and materials, which takes the river Maas as its guiding theme, makes the routing for the various

'Everything in this care centre is finely attuned and logically sequenced.'

separate functions, i.e. public, meeting/interaction, working and accommodation, self-explanatory.
By creating two corridors to the nursing wards, each with its own elevator, people and hospital logistics are kept separate. This creates a quieter environment for everyone, which is one of the important themes in the Planetree concept. This concept plays a key role in the architecture, which can be seen in such things as the approach to lighting. Wherever possible, daylight penetration has been allowed and encouraged, even in the operating theatres and intensive care units.
As well as optimum patient care, Planetree also stands for an optimum working atmosphere.

Life Cycle thinking

The manner in which property is developed determines the future of a building. The Maasziekenhuis has been developed according to the life cycle concept, a concept BAM continuously refines. The choice of materials, ease of maintenance and reduction of energy use are essential part of this concept and these have been adopted and incorporated into the development and construction phases.

Cutting corners today can often prove to be a false economy in the longer term. Only going for lowest initial construction costs is something quite different from looking at the lowest costs over the entire lifespan. The key factors here are quality and functionality, both in terms of the here and now and for the future. For example, the Maasziekenhuis has floor heights of 4 meters and wide column-free spaces, making future rearrangements an easy option.
Building with an eye to future extensions and integrating new health care concepts and technical developments as well as lifespan and the environment; that's life cycle thinking and behaviour.

The integrated approach to construction used for the Maasziekenhuis placed the responsibility for development, financing and maintenance with the party best capable of managing the risks involved. BAM is contracted to look after the maintenance for a total period of 20 years. This, combined with the unique way of working from beginning to end, ensured that the Maasziekenhuis was completed inside two years and well within budget.

Client

St. Anna Hospital, Geldrop

Architect

de Jong Gortemaker Algra Architecten en Ingenieurs, Rotterdam

Installation consultant

Deerns Raadgevende Ingenieurs bv, Rijswijk

Electrical and mechanical installations

BAM Techniek bv, Bunnik

Construction period

June 2012 - January 2013

Project budget

€ 3.4 million

Cooperative form

Turnkey

ST. ANNA HOSPITAL GELDROP

State-of-the-art operating theatre complex

The complete operating theatre complex in the E wing on the second floor of the St. Anna Hospital was demolished within just three weeks. This marked the start of construction of eight new operating theatres with associated spaces, such as the preparation room, holding/recovery, sterile storage, changing rooms and offices. Building new operating theatres also meant having the opportunity to make these state of the art. Efficiency and flexibility, combined with facilities that meet with the latest and highest classifications and insights, has produced an operating theatre department that provides quality and safety for patients and a modern and pleasant working environment for staff. Well-thought-out health care logistics optimise the work process, e.g. the central location of the preparation room with separate entrances for staff and patients. Each of the eight new operating theatres is identical, making them interchangeable. This means that all operations, including emergency operations, can proceed without having to wait for the right operating theatre to become available. The technical systems in an operating theatre are very complex, demanding an extreme level of accuracy.
Air treatment was provided with a larger plenum and increased ventilation volumes. A balanced air heating system was selected for general heating. The operating theatre complex also includes options for digital image storage, together with video conferencing facilities and all equipment can be operated via a touchscreen. The result is an operating theatre department that meets all current demands and those of tomorrow. Despite the high demands, the operating theatres and all systems were delivered within seven months as per the programme.

The result is an operating theatre department that meets all current demands and those of tomorrow.

Client
University Medical Center Utrecht, Utrecht
Architect
Valtos Architecten & Adviseurs bv, Rotterdam
Consultant
Valtos Architecten & Adviseurs bv, Rotterdam
Engineer
Aronsohn bv, Rotterdam
Construction period
May 2008 - August 2009
Project budget
€ 9.7 million
Cooperative form
Limited tender

IC CENTRE UMC UTRECHT

State-of-the-art hot floors

However leading and innovative modern IC centres may be, the new IC centre of the University Medical Center Utrecht (UMC) Utrecht went even further by installing state-of-the-art hot floors, which are quite different from those already there. The new IC centre, located on the rooftop of the UMC, has become the pinnacle of a perfect symbiosis between innovation, healing environment, functionality and architecture, while at the same time being future proof. In this case, optimum patient care and care for staff and students were designed based on a creative approach to the project, combined with the latest insights. It's tailor-made care that goes that extra mile. A place where research is carried out into new ways of caring.
And this is exactly the IC centre that has been realised. A care centre par excellence where state-of-the-art work is performed. By combining some key factors, a place where patients are given the very best possible opportunity to recover has been achieved. These factors include the way the process is organised and set up. These aspects exert a positive influence on the results and quality delivered by the IC centre in terms of care, research and education. Although the demands of the design brief were extremely high, in practice they turned out to be completely feasible. In the IC centre, everything is focused on working in a state-of-the-art fashion, not only now, but also for in future, thereby promoting the continuity of work. An optimum organisation of the process means that changes and innovations can quickly be implemented at patient level. Innovative construction and fittings make flexibility possible, both in terms of the organisation of the process and in its set-up.

The new IC is located outside the hospital's normal structures, creating a peaceful and tranquil haven.

Client

UMC St Radboud, Nijmegen

Architect

EGM Architecten bv, Dordrecht

Consultant

Kropman BV, Nijmegen

Engineer

Aronsohn raadgevend ingenieurs bv, Rotterdam

Construction period

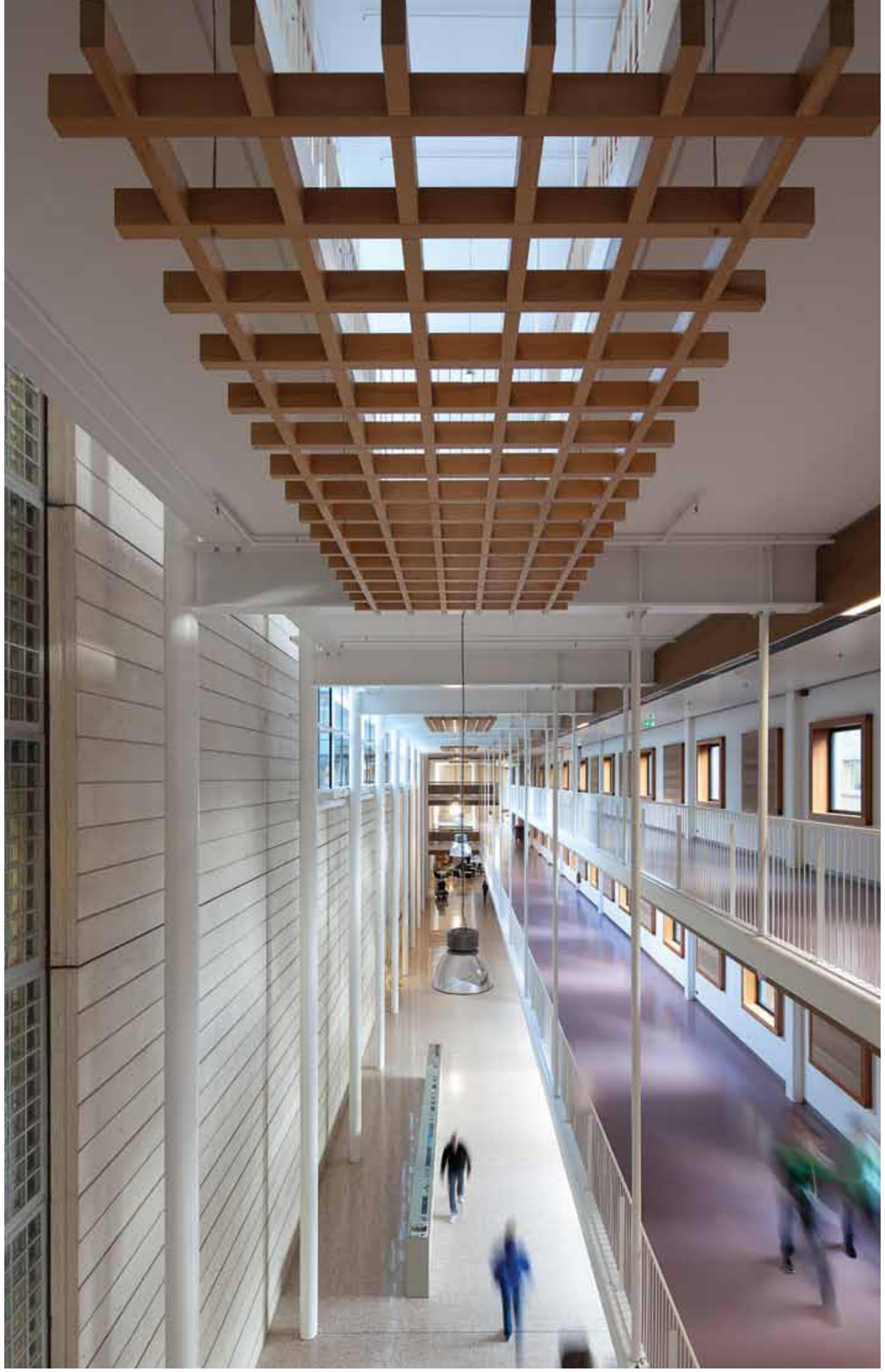
December 2007 - September 2011

Project budget

€ 83 million (excl. systems)

Cooperative form

European tender. Main contractor with performance coordination of sub-contractors and secondary contractors



THE RADBOUD UNIVERSITY MEDICAL CENTRE NIJMEGEN

Old and new connected

Sometimes, in practice, a challenge turns out to be a Challenge with a capital C, and the new build for phase III of the Radboud University Nijmegen Medical Centre was certainly one of those. BAM Utiliteitsbouw was appointed to realise the new build between two existing hospital buildings. These buildings were connected below ground level by a tunnel for leads and cabling. With a new surface area of more than 65,000 m² to be built that was to include various new technologies, the existing tunnel system turned out to be too small for the three buildings. It was self-evident of course that all the ongoing everyday technical processes, including the hot and cold water supply, gasses, waste water systems, heat/cold storage, data cables, alarm and communication systems and tube mail distribution had to continue to work smoothly, 24/7. And this, despite the need for various structural works to be completed at the same location. The initial task was to remove the existing asbestos from the tunnel. This allowed for a side wall to be demolished, immediately doubling the width of the tunnel. All systems were then grouped together in the new tunnel, to facilitate both maintenance and any possible future extensions in an efficient manner. Working closely with the hospital's Technical Services and the system engineers, we proceeded to convert the systems one by one. The most critical and risky systems were converted at night at the weekend. We were well aware that these processes could literally be a matter of life and death, but clear communication and implementation prevented any disruption to the ongoing services. As such, the Radboud University Nijmegen Medical Centre felt the project had truly earned the title of 'Flawless Operation'.

In consultation with the hospital's Technical Services and engineers, we converted the systems one by one.

Client
Zaans Medical Centre, Zaandam
Architect
Mecanoo Architecten
Systems consultant
Ingenieursbureau Linssen
Building physics and fire safety consultant
DGMR
M&O consultant
Arcadis
Engineer
BAM Consultancy & Engineering
Construction period
May 2014 - May 2016
Project budget
Approx. € 90 million
Cooperative form
Alliance Vitaal ZorgVast - ZMC, DBMO contract alliance with BAM VOF (BAM Utiliteitsbouw and BAM Techniek) is expected to be signed December 2013


Artist impression.


Artist impression.

Artist impression.

ZAANS MEDICAL CENTRE ZAANDAM

Experience value

The ZMC, in alliance with Vitaal ZorgVast, will design, realise, manage and maintain the new hospital. The new hospital will be combined with what is also known as a care boulevard. The new buildings will have a floor space of approximately 40,000 m² and will be built on the current site of the Zaans Medical Centre. The old hospital will be demolished once the new one has come on stream. According to the planning, the hospital will be ready in 2016.

An exclusive form of collaboration will start in terms of both the development and construction, together with a 25-year maintenance contract. The basic principles are lean, sustainability, quality and reliability. Never before has a cooperating partner been involved at such an early a stage.

Strengths will be bundled and pooled. The knowledge and skills of both parties will be utilised extremely early in the process. This will generate a smartly designed building, where care processes for patients will be key and where affordability is guaranteed.

The Zaans Medical Centre stands for reliable care, hospitality and innovation, and the new build is essential to achieve this. The new hospital will be designed based on the concept of providing a healing environment for the patient.

Patient care processes will be key for the design.

Client
Isala Clinics, Zwolle
Architect
Architectenbureau Alberts & Van Huut bv, Amsterdam
Consultant
Deerns Raadgevende ingenieurs, Rijswijk
Engineer
Royal Haskoning DHV, Den Haag
Construction period
September 2009 - March 2013
Project budget
€ 210 million incl. systems
Cooperative form
Engineer & Build agreement together with long-term maintenance contract

ISALA CLINICS ZWOLLE

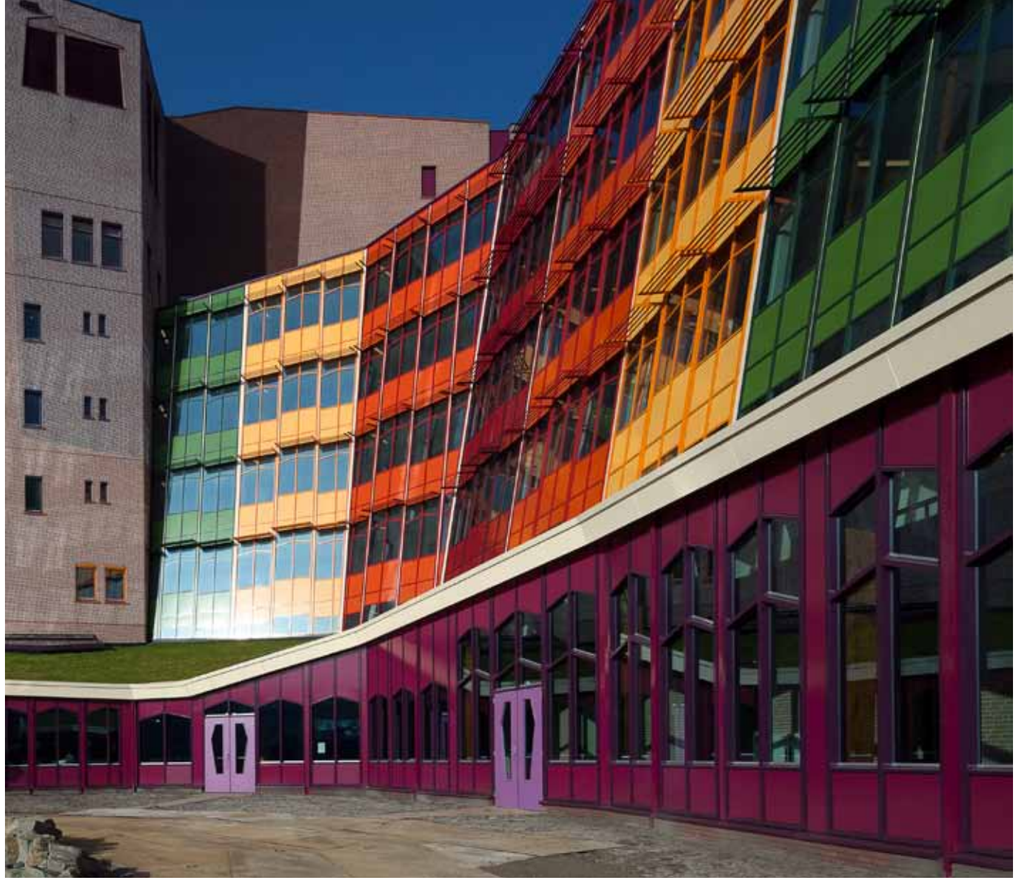
Life Cycle thinking

The outstanding collaboration during construction of the new Isala Clinics in Zwolle between BAM Utiliteitsbouw's D2M consortium, BAM Techniek, Croon, Unica and Kropman is set to continue. On 6 March 2013, a long-term partnership agreement was signed for the maintenance of the new building, the systems and the surrounding site. What's more, this will be a risk-bearing management venture, which is a first in the world of health care.

The reason we entered into this type of agreement with every confidence lies in our Engineer & Build contract for the new buildings. This made it possible to shape life cycle thinking from the very outset. With the traditional approach, the lifespan of a building is almost never factored into the equation.

Not so with the Isala Clinics. During construction, for example, numerous proposals were put forward which helped guide the selection of products and materials. These decisions will have a profoundly positive effect on future maintenance and exploitation. Sustainable continuity for the Isala Clinics has been guaranteed as a result.
Sustainable continuity was applied to staff management as well. The entire Technology and Accommodation department was taken over by BAM, which means that all knowledge and skills will be retained for the Isala Clinics. An integrated approach to bringing together system technology and construction has meant that there is only one point of contact for all maintenance issues. Efficiency through knowledge, experience, insight and the choices made.

With the traditional approach, the lifespan of a building is almost never factored into the equation.



Building smoothly, rapidly and within a specified budget requires strict agreements, to which all parties must agree and conform. The thing that was obvious from the very beginning was the mutual, shared concern for the project. During the preparation phase, the same team brought together for the tender made every effort to collate all the optimum choices and alternatives for the benefit of the project contract. Our BAM Consultancy & Engineering department, which also appointed the architect's project leader, drew up the building engineering and construction drawings. This meant that the architect saw their proposals realised, without any fundamental amendments or disruptions to the drawing process. We set up a star system, requesting the client's information at various stages, which ensured that all phases lead from one to the next smoothly and fluidly, avoiding any delays. This proved to be an invaluable system for the details required for the Permanent Medical Facility (PMF) in particular. In the period between delivering and the building coming into use, the PMF could be validated and tested. In terms of systems, smart working also saved time. Thanks to the commitment to engineering and preparation, work was done rapidly and accurately even with a smaller team of construction specialists. By researching documents and tracking any differences at a very early stage and by using clash detection, we were able to present our client with a final contract, which included an attractive 'no additional work' guarantee.

Building to plan and within budget

Client

Rijnmond Zuid Medical Centre, Rotterdam

Architect

Wiegerinck Architectuur Stedenbouw, Arnhem

Consultant

Royal Haskoning DHV, Nijmegen

Engineer

Goudstikker - De Vries, Capelle a/d IJssel

Construction period

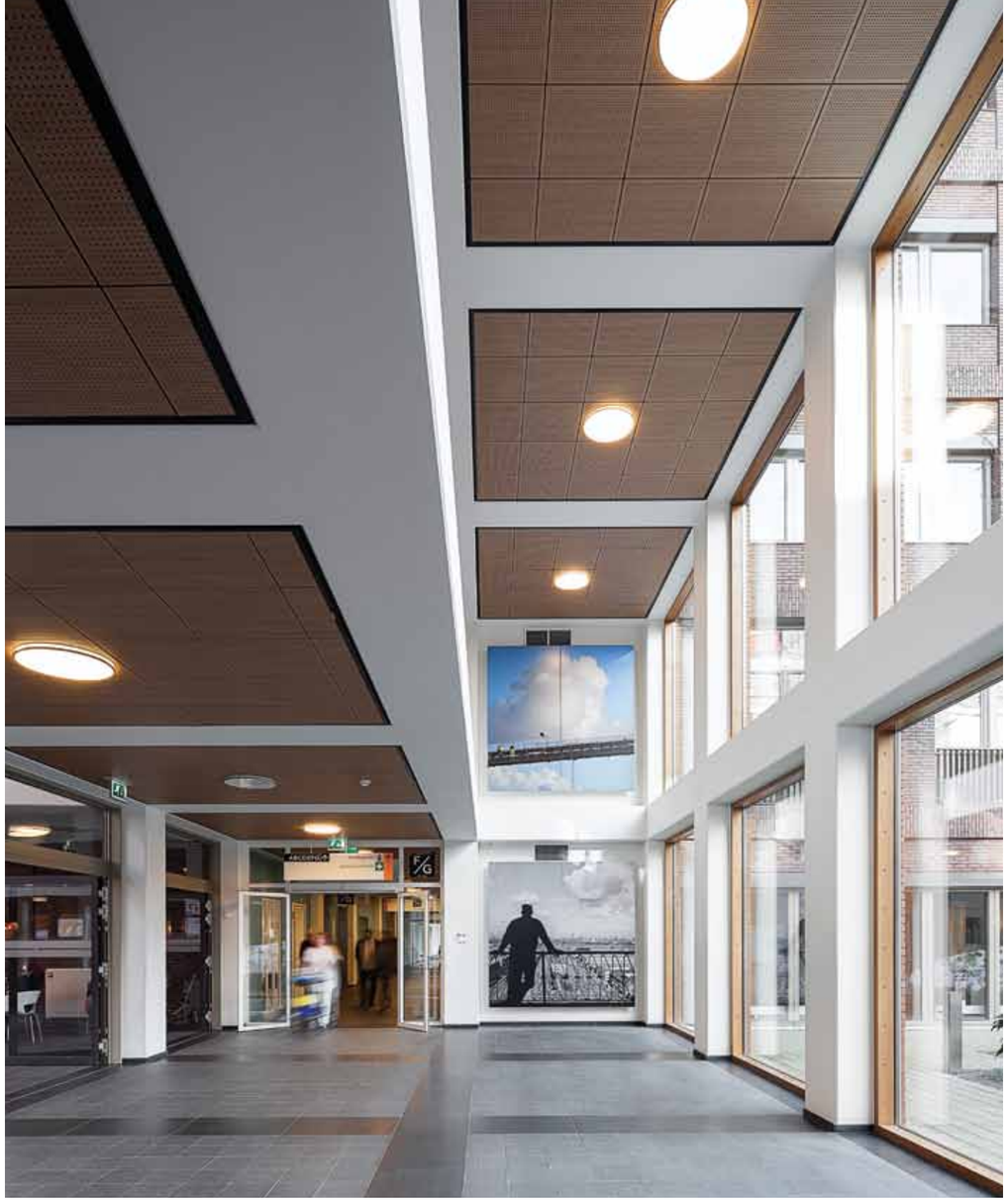
August 2007 - October 2010

Project budget

€ 91 million

Cooperative form

European tender



MAASSTAD HOSPITAL ROTTERDAM

Building to plan and within budget

Before we could start the construction process, the final item on the list was to round off the optimisation process. And quite a drastic form of optimisation this turned out to be. A change in the client's requirements meant that the entire original elevation system mutated from traditional to sandwich. This meant that the structural internal sheets combined with traditional masonry were amended to structural internal sheets to include timber adjustable frames and external sheets with integrated brick cladding. This amended detailing had no bearing on the delivery date however. Close collaboration between the architect, engineer and the sub-contractor appointed to produce the elevation's components ensured that construction went ahead as planned from 2008. Approximately 1,200 sandwich components were produced in 16 moulds, sited in two locations. The Maasstad Hospital was built in four structural sections, which included placing and fixing around eight of the sandwich components per day, the heaviest of these weighing around 16,000 kg. A close-knit team and streamlined processes saw the construction programme almost eight weeks ahead of schedule at one stage. Even though we were tasked with installing some of the very latest hospital technology and various stakeholders were allowed to share their input and get involved, we were still able to complete the project as per the original timeframe. The Maasstad Hospital was delivered in October 2010. The second phase of 11,000 m², which was subject to a later contract, was handed over in January 2011. A total of 80,000 m² was delivered on time, with an agreed price and within budget.

A smooth construction programme starts with excellent collaboration and streamlined processes.

Client
Estrade Projecten, Rotterdam
(part of Vestia)
Architect
EGM Architecten bv, Dordrecht
Consultant
De Blaay Van de Bogaard
Raadgevende Ingenieurs bv,
Rotterdam
Engineer
Goudstikker - De Vries, Den Bosch
Construction period
December 2008 - January 2011
Project budget
€ 102 million incl. systems
Cooperative form
Design & Build (multi-storey
car park), Engineer & Build
(care building) and Technical
Management and Maintenance
contract (care building)

ZORGBOULEVARD ROTTERDAM

A different type of financing

More than just a care concept; a significant boost to employment and education in the south of Rotterdam. These were the clear demands after the merger of the Rotterdam Zuid Medical Centre. The core task of any hospital is even clearer of course: healing people and keeping them healthy. For a hospital, property development and operation, and all the associated risks, are not familiar territory. For the collaborative partners, the Founding Members of the Zorgboulevard Rotterdam, this fact alone proved to be the principal reason to transfer responsibility for the development into the hands of market parties more geared to the demands of the task. The grounds surrounding the new Maasstad Hospital were sold off to the Vestia housing corporation. The Zorgboulevard Rotterdam BV was formed for the complete development of the Medimall, multi-storey car park and outdoor area. The Zorgboulevard Rotterdam BV consisted of three stockholders: Vestia, the Maasstad Hospital and Vitaal ZorgVast.

Close collaboration with the Municipality of Rotterdam and the parties involved in the Zorgboulevard resulted in a PPP (Public Private Partnership) in which a spearhead policy provided the form for the Zorgboulevard Rotterdam. Covering the financial risk, whilst simultaneously thinking together and contributing to requirements and implementation, and continuing to exert influence on this, created a tightly knit community committed to the hospital, a community which provided an attractive, safe and economically successful care, learning and accommodation environment.

The PPP (Public Private Partnership) resulted in the Zorgboulevard Rotterdam.

Cooperation between professional carers, who share the same close proximity. Offering such extended synchronised care requires flexibility from all concerned. Zorgboulevard Rotterdam and the Maasstad Hospital have aligned the complete chain of care, both in terms of performance and in terms of letting and renting spaces to and from each other. When a hospital outsources a service, this usually results in a space being left vacant and unused; not a particularly sound economic proposition. If, in the immediate future, the hospital sees no use for this space, it can make it available to let to an existing or new, suitable care partner. This also works the other way around; if required, the Maasstad Hospital itself can also rent space on the Zorgboulevard. In other words: preferential renting and letting, geared towards each other's needs, results in a sound form of collaboration, an economically viable operation and the knowledge of the full commitment to both man and the environment. The Zorgboulevard Rotterdam's slogan 'all in one at the Zorgboulevard' also extends to the notion of flexibility in property development in the health care sector.

Flexibility

Client

Diakonessenhuis Utrecht, Utrecht

Architect

De Jong Gortemaker

Algra Architecten, Rotterdam

Consultant

Ingenieursbureau Linssen bv,

Amsterdam

Engineer

De Jong Gortemaker

Algra Architecten, Rotterdam

Construction period

October 2010 - October 2012

Project budget

€ 26.7 million

Cooperative form

European limited tendering

ACUUT CENTRE DIAKONESSENHUIS UTRECHT

Continuation of primary processes

Pile driving and surgery; never a good mix. However, the construction immediately adjacent to the existing Diakonessenhuis had to continue, and so too did the hospital's work. Using a special technique, we were able to carry on building as 'silently' as possible. A pressure system was utilised to embed the sheet piling and piles into the ground, while generating as little noise and vibration as possible. This technique compresses the units into the ground instead of the conventional ramming and hammering method. After this, we created an enclosed construction basin by injecting the soil with a gel. This meant that the continuous draining off of groundwater could be avoided, which proved a real advantage in terms of reducing the noise levels. One complicating factor was that the new atrium was to be partly built over the existing operating theatres.

By setting up a programme which incorporated agreements on working times and detailing the circumstances when the atrium part of the construction would need to be halted, this process was successfully completed to the satisfaction of both parties.

As the A&E department needed to remain accessible day and night, a logistics plan was put in place in collaboration with the hospital and ambulance services for the delivery and removal of materials. This meant unusual working times, but ensured 100% accessibility to the emergency facilities. We are, of course, very aware that in an existing hospital environment the undisrupted continuation of primary processes is the key priority. And we modify our processes to ensure that this continues to happen.

The ambulance services were closely involved in the logistics planning.

Client
Erasmus Medical Centre, Rotterdam

Architect
EGM Architecten, Dordrecht

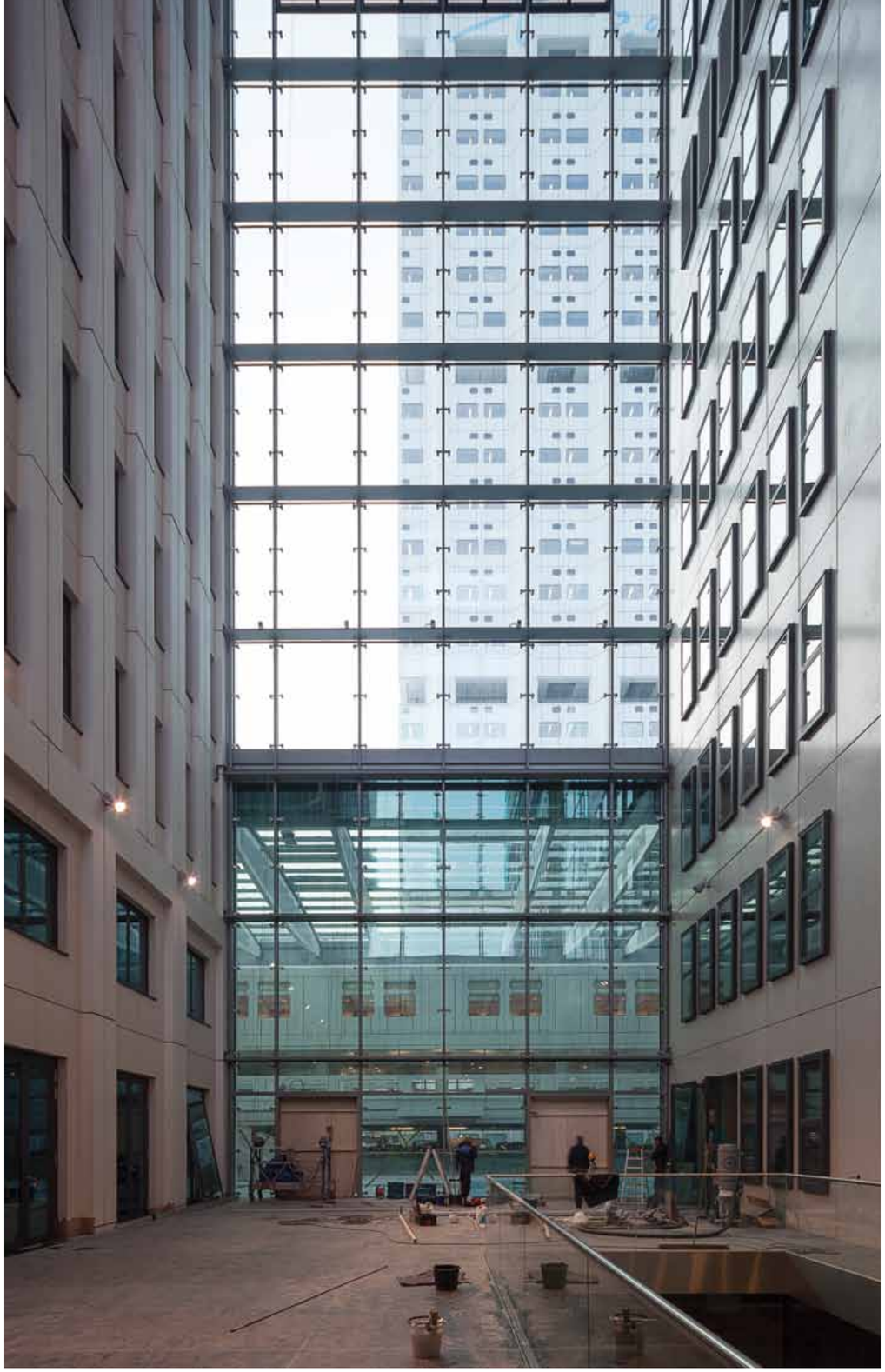
Consultant
Raadgevend Technisch Bureau van Heugten, Capelle a/d IJssel

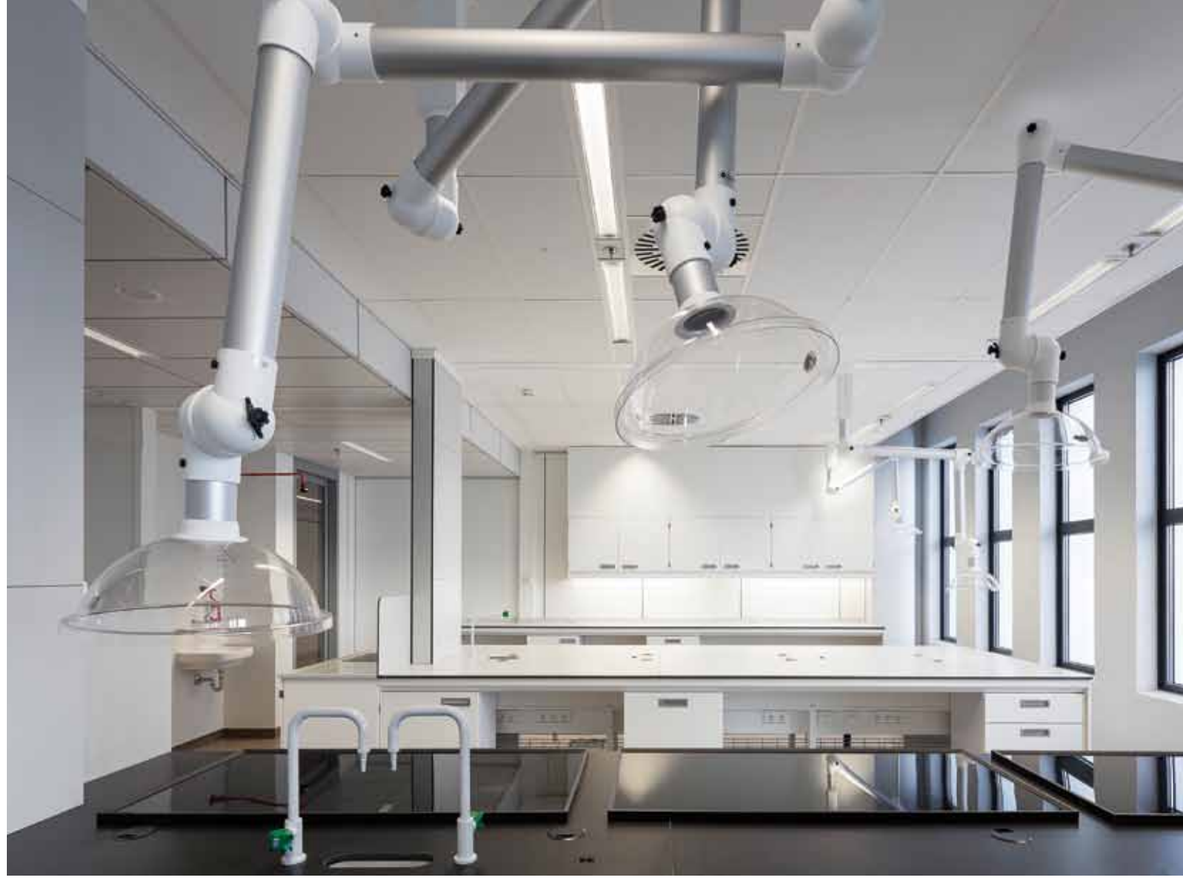
Engineer
Aronsohn Raadgevende ingenieurs bv, Rotterdam

Construction period
September 2009 - March 2017

Construction budget
€ 449 million

Cooperative form
Limited tendering





ERASMUS MC ROTTERDAM

Continuation of primary processes

To minimise construction disruption, weekly meetings take place between construction management and the consultants. The activities which will have a major impact on the hospital in the months to come are discussed in detail during these meetings and plans are put in place and optimised to limit any potential nuisance.
Occasionally these meetings will flag up that the expected disruption will have such major effect that the work may be better carried out outside regular working hours, or that the issue may even require an adjustment to the design by the consultants.

What patients and staff really need most in a hospital is a quiet environment. This is our primary starting point. As such, activities which generate noise or cause vibrations or require closure of public routes as standard are performed outside regular working hours; usually in the evening or during the weekend. In collaboration with the hospital, we've also put in place so-called 'closing down procedures'. These procedures can, for example, be used in the event of emergency operations. Only after the client gives the all-clear will activities be resumed. Proper alignment, frequent consultation and strict compliance with agreements have proven their worth in practice.

During construction, the hospital's vital work needs to continue as normal.

Complex interweaving

The Erasmus MC, the new academic medical centre, is being realised by us in combination with other parties on and around the current site in the centre of Rotterdam. Naturally, throughout the construction period, the hospital activities need to continue. This requires a highly detailed, complex, interwoven approach.

Before construction started, all the public passage flows, staff routes and critical spaces were mapped out. This revealed that there are three flows running through the construction area: two created by the public and one so called 'bed route'. By drawing up a construction phasing plan, the positions of these various flows, the assembly methods and the sequencing of the various construction phases could then be programmed.
The planning of all activities relating to the existing buildings or indeed linked with existing buildings need to be aligned with the various hospital departments. Separate meetings will be held with the parties involved for each construction phase.

There are other parties working on the construction site and their activities also need to be facilitated during construction because otherwise the hospital would not be able to carry out its primary processes. Mutual efforts by all parties involved will ensure this is made possible. Mapping out all the flows and routes also flags up the limitations. Flexibility, insight, inventiveness and solid collaboration ensure that the complex interweaving of approaches runs smoothly at this very restricted construction site.

Client

Diakonessenhuis Utrecht, Utrecht

Architect

UN Studio, Amsterdam

Cooperative form

DiakPlus, a collaboration between Vitaal ZorgVast and BAM Utiliteitsbouw, were appointed as consultants to draw up a master plan for the hospital. The plan is a blueprint for future developments on the hospital site


Artist impression.


Artist impression.


Artist impression.


Artist impression.

MASTER PLAN DIAKONESSENHUIS UTRECHT

Flexibility

The Diakonessenhuis in Utrecht challenged the market in 2008 to develop a multi-functional, flexible and financially viable master plan for its forecourt. DiakPlus, together with UN Studio and Arup, presented this master plan. The ability to anticipate future changes while responding to contemporary needs requires innovative thinking and multi-functional design and performance. Spaces which by day function as offices can be transformed into smaller units in the evening. An office can become a space for running a training course, while smaller units can act as treatment or consultancy rooms. Functional flexibility is the baseline. There is a positive outcome in many areas: anticipation of new care concepts, optimum usage of space, a liveable and safe environment, even during the evening hours. And there's more: buildings remain functional for a longer period of time, making sustainability and cost efficiency evident. The master plan also includes guaranteed extension possibilities: housing for staff on the site, with commercial functions accommodated in the plinth, together with the extension of the Diakonessenhuis, and a guaranteed functional and logistical connection to the new care buildings. The urban planning designs in the master plan are carefully safeguarded in each phase. One attractive factor for the users is that the multi-functional use will see overall costs decrease, even while rents remain fixed at market prices. This is a valuable point for the management of the property, which could realise an optimum letting return for the Diakonessenhuis.

Flexibility ensures sustainable dual use. This opens up real perspectives.


Artist impression.

Client

Martini Hospital, Groningen

Architect

SEED Architecten, Alkmaar

Consultant

AT Osborne, Baarn

Engineer

Ingenieursbureau Wassenaar, Haren

Construction period

July 2008 - December 2010

Project budget

€ 12.4 million

Cooperative form

Limited tender

MARTINI HOSPITAL GRONINGEN

Continuation of primary processes

Of the old Martini Hospital's total 36,000 m² GFA, we renovated and rebuilt 22,690 m². Given that this area was one where all activities needed to continue unhindered, including a kitchen and dialysis centre, the work progressed in phases. To be more precise: 28 phases, in which the five floors were dealt with one at a time. During the total renovation and reconstruction period, we held intensive meetings every two weeks with the architect and client. In these meetings, we discussed the measures required to minimise the disruption, and also endeavoured to make the work and difficulties involved in moving the departments during the construction period as smooth as possible. Thanks to this close form of consultation, we managed to deal with unexpected situations smoothly, which had a positive influence on the work overall. A good example of this was the asbestos removal. Initially, the internal and external removal of asbestos was not part of the brief, but this turned out to be unavoidable.
This included work on internal walls, grease layers between the walls and the removal of asbestos dust from above the ceiling and from the existing technical components. There were issues with the existing technical systems as well. Adjusted and modified over time, they turned out not to be in the locations where the drawings indicated they should be.
Interrupting the power supply was completely out of the question because of the dialysis centre. Once again, mutual consultation and cooperation ensured that the work continued and progressed. This ensured that the total renovation and reconstruction could be realised on time, despite the unexpected hurdles.

Fortnightly meetings ensured continuation and progress.

OUR EXPERIENCES IN THE HOSPITAL SECTOR OVER THE PAST TEN YEARS IN THE NETHERLANDS

Over the past few pages, we have presented specific aspects which have played their part in the preparation and implementation of a number of hospital projects and we have explained our dedicated approach to these. We can conclude that new build projects for the health care sector in general present a completely different set of issues than those encountered in reconstruction, extension and renovation projects.

The following pages provide an overview of the hospital projects we have realised over the past 10 years, or which are still ongoing. We have briefly outlined the particulars of each project. We are more than happy to provide you with any additional information you require of course.

Amsterdam, new build for West Wing of the VUmc

We built the medical centre's new West Wing on the VUmc site. This accommodated the A&E department and ambulance hall, the Mental Health department and a visitors' wing. Two floors of an underground car park were also incorporated. The existing VUmc building can be reached via a new footbridge from the fourth floor of the West Wing.

Hoofddorp, new build for Spaarne Hospital

The Spaarne Hospital is a 455-bed hospital, consisting of two buildings; one two-storey building and one four-storey one, which are connected by three footbridges. This project was realised under the guidance of Design & Construct. The advantage here was the shorter lines of communication between engineering and performance, and the faster integration of experiences in the detailing of specification documents and construction drawings.

Amsterdam, renovation and new build of VUmc operating theatres

Part one of the construction involved the renovation of six operating theatres with staff rooms and technical spaces on the sixth and the seventh floor. Part two included the building of four new operating theatres with additional rooms and technical spaces. The existing building remained in use throughout the construction period. To limit disruption and noise nuisance, work was often carried out in the evenings or at night.

Amsterdam, extension and renovation of St. Lucas Andreas Hospital

The phased construction included the building of new outpatient clinics, treatment rooms and a car park, together with the extension and renovation of two nursing wings. The main entrance was temporarily relocated. Additional work included the renovation of the entire operating theatre complex and the kitchens. The recovery spaces and the operating theatres remained open throughout the renovation period.

Boxmeer, new build Maas Hospital Pantein

This flexible building is the result of a unique situation in which the architect, developer, construction company, housing advisor and hospital all shared responsibility. Completed in two years within budget and without additional work. The healing environment that pervades the entire Maasziekenhuis gives the hospital an intimate and safe atmosphere.

The Hague, demolition and new build of outpatient clinic for the HAGA Hospital

The construction team was appointed to demolish the existing outpatient clinic and build a new four-storey outpatient clinic to include a new structure on the roof. At times, the demolition, piling and construction were happening less than two meters from the hospital buildings. Thanks to a continuous process of communication and consultation, we managed to keep the vibration disturbance and noise nuisance to the MRI scanning department to an absolute minimum.

Hoorn, new radio therapy building for the Westfriesgasthuis

This extension included three radiation bunkers, an oncology department and other hospital facilities in a new three-storey radiotherapy building. Radiotherapy bunkers with walls of between 70 - 300 cm required a very special construction and building technique. A constructive and creative optimisation round ensured that we were able to build well within budget.

Groningen, renovation and reconstruction of the Martini Hospital

The project entailed the renovation and refurbishment of the old Martini Hospital building (22,690 m²). The hospital departments affected included the dialysis centre and the central kitchens, which had to stay open throughout. This required the project to be divided into 28 phases and carried out in a piecemeal fashion, floor by floor. Limiting the disturbance was key during this project. Due to the undocumented changes to the existing situation, the technical systems on each floor had to be considered and dealt with on an individual basis.

Geldrop, operating theatre complex on second floor of St. Anna Hospital

The complete second floor was demolished within three weeks, which cleared the way for us to make a start on the construction of the new operating theatre complex. The complex included eight operating theatres with additional spaces, including a preparation room, holding/recovery space, sterile storage, offices and changing rooms. As the main contractor, we were responsible for and in charge of all activities, including the installation work.

Hoorn, new build for the Westfriesgasthuis

Together with BAM Techniek (in combination with Homij), we built the new Westfriesgasthuis with Mental Health Care facilities and a car park for 850 cars. Because we exceeded the budget during the tender bid, the plan underwent a second critical look, utilising plan optimisation, to bring it into line with the project budget. We were able to do this successfully.

Amsterdam, renovation and new build accommodation for 575 beds at VUmc

The new build for the VUmc consists of two buildings for the accommodation and care of bedridden patients. The renovation saw the demolition and reconstruction of the nursing home wings, which included the replacement and extension of the elevator systems. The renovated part consisted mainly of staff rooms for the nursing staff.

Rotterdam, Erasmus MC

Erasmus MC will be built on and around the current site. The hospital will stay open during construction work. It will be a building for the future with options to modify both the floors and the hospital functions. Innovative energy technologies will also be used, such as geothermal storage and green roofs.

Tiel, new build for Rivierenland Hospital

This project entailed a new build replacement for a hospital. We were appointed to coordinate the subcontractors' work, which included doing work on the electrical and mechanical systems. Once the new build was completed, the older parts of the hospital were demolished. Metal stud partitions were used for the interior walls. These partitions are flexible, facilitating any rearrangement of the future space planning.

Rotterdam, Zorgboulevard Rotterdam

This Design & Build appointment was to build the Zorgboulevard Rotterdam (Medimall), the construction of a 1,800-space multi-storey car park and the furnishing of the public site adjacent to the new Maasstad Hospital. The client, Vestia, developed the Zorgboulevard in collaboration with our associate company Vitaal ZorgVast. This represented a significant broad based stimulus for the south of Rotterdam and environs.

Utrecht, Acuut Centre for the Diakonessenhuis

The extension consisted of five floors including intensive care units, nine operating theatres with extension options, recovery spaces, office and changing rooms, central sterilisation spaces and technical spaces. The new atrium, which was partially built over the operating theatres, made this a particularly complex project. The operating theatres were able to continue their vital work undisturbed as required thanks to the flexibility and mutual efforts of all parties involved.

Utrecht, IC centre with UMC

A state-of-the-art IC centre was constructed on the roof of the UMC. This required having a crane on the roof, which reduced the amount of space required on the ground. There were also restrictions to the dimension and weight of the various components. And of course the hospital's vital work needed to continue unabated. If too much disturbance was indicated, work was immediately halted and rescheduled for a different time.

Groningen, construction of Noordpunt UMCG facilities building

As part of a building consortium, we built a new facilities building with an 850-space car park and a radiotherapy bunker. The city centre hospital had a very small building site. To minimise nuisance, a special type of foundation pile was used, allowing the sheet piling to be driven into the ground using pressure rather than vibration.

Utrecht, master plan for Diakonessenhuis

The Diakonessenhuis Utrecht appointed DiakPlus to develop a master plan for the realisation of projects within the hospital terrain, projects which would demonstrate as wide a range of options, possibilities, interpretation and uses as possible. Spaces used during the day can be used for something completely different in the evening; they can even be subdivided into smaller units. The guiding line in this project was functionality and flexibility.

Leiderdorp, renovation and new build for Rijnland Hospital

The renovation consisted of the reconstruction of the hospital's three existing wings. During the construction process, certain departments were closed so that the rest of the hospital could continue functioning. The new build entailed four floors. All the new build and renovation activities were aligned with the introduction of a phasing scheme.

Nijmegen, Phase 2 of the Radboud University Nijmegen Medical Centre

Phase 2 (55,000 m²) consisted of a new 'Woman and Child' building, the first phase of the 'Diagnostics' building and the first phase of the central axis new build. This central axis is the hospital's 'artery' and includes a tunnel for the service leads, pipe work and cabling, with a traffic tunnel/transport zone above. The hospital continued to operate as normal during the construction.

Hoogeveen, renovation and new build for Bethesda Hospital

As the main contractor, we performed all the activities in the area of project management, construction and work preparation, excluding the installations. The complexity of the existing systems, pipe work and cabling routes, together with ensuring that the hospital's primary processes continued to function throughout, called for an extremely detailed phasing programme. This was key to the success of this challenging project.

Maastricht, AZM Towers

A number of changes and alternatives were introduced during the preparation and the performance phases. These were at the behest of the client and in response to a number of our own proposals. The load-bearing construction was altered by the client, and with our knowledge and expertise we were able to contribute to a different load-bearing system being used. Working as a separate project group, we, the client and the sub-contractors detailed the operating theatres. This created a mutual commitment and bond, which allowed the 'normal' construction process to proceed fluidly.

Tilburg, renovation and new build for the TweeSteden Hospital

The TweeSteden Hospital has been given a completely new image in three distinct stages. The new build and renovation of the outpatient clinic, the entrance and the restaurant were completed in three phases. The fact that the main entrance was dated and the existing outpatient clinics were spread across the entire hospital were the principle reasons for this work.

Heerlen, Atrium Medical Centre

In anticipation of the large scale renovation of the Atrium Medical Centre in Heerlen, Vitaal ZorgVast tested the plans and aligned these with Atrium MC's expected future accommodation requirements and financial prospects. This resulted in renovation advice, whereupon the costs were cut when considered against the full life cycle of the proposed work. Vitaal ZorgVast also provided advice on the financing options.

Zwolle, new Isala Clinics complex

With a floor area of around 108,000 m² and 850 beds, the new Isala Clinics complex is the largest non-university hospital in the Netherlands. Built according to our life-cycle concept, the complex comprises offices, research and treatment facilities, nursing wards and laboratories, divided among four buildings. BAM also signed a 10-year risk-bearing maintenance contract.

Zaandam, new build for Zaans Medical Centre

The ZMC is in the process of designing, realising, managing and maintaining a completely new hospital in collaboration with Vitaal ZorgVast. The new hospital will be ready in 2016. This represents a unique form of development collaboration, construction and maintenance. The maintenance contract will run for 25 years.

Nijmegen, Phase 3 of Radboud University Medical Centre

Phase 3 consisted of building a new diagnostics centre, surgery building, temporary entrance, central axis and bridge between two buildings, with a total gross floor area of 67,400 m2. The Radboud University Nijmegen Medical Centre stayed open during the construction work. A temporary 3-storey corridor (bypass) was built so that hospital processes could continue.

Rotterdam, Maasstad Hospital

The new hospital construction comprises squares, streets, six courts and a central axis. There are roof gardens on the top floors. The building has a universal building structure, so that functions can easily be changed. The hospital is heated using residual industrial heat, thereby significantly reducing CO_2 emissions.

SELECTION OF HOSPITAL PROJECTS REALISED OR UNDER CONSTRUCTION BY BAM CONSTRUCT UK IN THE UNITED KINGDOM AND BAM DEUTSCHLAND IN GERMANY OVER THE PAST TEN YEARS

Laboratory of Molecular Biology, Cambridge - United Kingdom

Value: £ 212 million

Client: Medical Research Council

Engineer: RMJM

Contract period: Opened by HM Queen Elizabeth Summer 2013

Description:The new building doubles the size of one of the world's leading – and most famous – laboratories and it includes state-of-the-art facilities for some 400 scientists and 200 support staff. Heavy plant is housed in a dedicated energy centre with four stainless steel-clad towers linked to the building to reduce vibration in the laboratories.

Contractor: BAM Construct UK

Hochtaunus-Hospitals, Bad Homburg and Usingen - Germany

Value: € 165 million

Client: Hochtaunus - Kliniken GmbH

Contract period: 2011 - 2013 plus 25 years of maintenance

Description: Construction of two new hospitals in Bad Homburg and Usingen, just north of Frankfurt. The hospitals function as the academic training institute of the University Hospital in Frankfurt. The hospital in Bad Homburg will have a gross floor area of 63,000m², spread over seven storeys, as well as eleven operating theatres and 483 beds. In Usingen, the hospital will have three floors and a surface area of more than 16,000m², two operating theatres and one hundred beds.

Contractor: BAM Deutschland

Cardiac Centre, University Medical Centre, Cologne - Germany

Value: € 31.5 million

Client: Klinikum der Universtät zu Köln

Contract period: 2004 - 2007

Description: Full turnkey delivery of the Cardiac Centre for the University of Cologne. The Heart Centre houses heart-thorax surgery, cardiology, paediatric cardiology and vascular surgery and comprises four operating rooms and three catheter measuring stations, as well as several wards for in total 170 beds.

Contractor: BAM Deutschland

Musgrove Park Hospital, Taunton - United Kingdom

Value: £ 34 million

Contract period: 2012 - 2013

Description: The new three-storey centre will have 112 single rooms with ensuite facilities. It will replace wards 1 to 5 in the Old Building and will allow the caring for patients in the most modern accommodation in the National Hospital Services (NHS). It will be one of the few NHS developments in the country with all single rooms.

Contractor: BAM Construct UK

Albertinen Hospital, Hamburg - Germany

Value: € 53 million

Client: Albertinen Diakoniewerk e.V

Contract period: January 2012 - December 2013

Description: As an extension of the existing Albertine Hospital BAM will build an ultra modern medical building with high-tech operating rooms and intensive care areas, an integrated women's and maternity hospital, a diagnostic center, as well as an emergency room with reception center.

Contractor: BAM Deutschland

Hospital Villingen-Schwenningen - Germany

Value: € 25 million

Client: Schwarzwald - Baar Klinikum

Contract period: 2009 - 2010

Description: The 750-beds new hospital consists of a three-storey base building, a technology floor and three mounted three-storey bedding houses. The women's and children's Centre is an own building of three storeys connected to the main building. BAM constructed the concrete framework for this hospital.

Contractor: BAM Deutschland

Surgical Clinic, Ulm - Germany

Value: € 150 million

Client: Universitätsklinikum Ulm

Contract period: 2008 - 2012

Description: Turnkey construction of two main buildings, as well as a base building and a floating building above a glass façade, together with a lecture theatre. The auditorium is located as free-standing building in the courtyard of the medical clinic. Together with the lecture hall and other seminar rooms it acts as a convention centre. The heliport is located on the bedding house roof.

Contractor: BAM Deutschland

Caerphilly Local General Hospital, Ystrad Mynach - UK

Value: £ 125 million

Client: Gwent Healthcare NHS Trust

Contract period: 2008 - 2011

Description: Construction of a fully-equipped local general hospital covering approximately 29,000 ft² over two storeys with 276 single-bed rooms. The upper ground floor accommodates the local emergency centre, out patients, women's and children's unit, health maintenance / therapies and the mental health unit. The first floor comprises the diagnostic and treatment centre including short stay wards, endoscopy suite and medical wards for stroke, rehabilitation and sub-acute care.

Contractor: BAM Construct UK

University hospital, Heidelberg - Germany

Value: € 92 million

Client: Land Baden - Württemberg

Contract period: 2000 - 2003

Description: Turnkey construction of the bedding house which connects to the head clinic. The adjacent treatment and research building is divided by 5 courtyards and connected via glazed bridges to the head clinic. The hospital has 283 care beds plus 24 beds in the day hospital.

Contractor: BAM Deutschland

Tertiary Cardiothoracic Centre Basildon Hospital, Essex - United Kingdom

Value: £ 35 million

Client: Basildon & Thurrock University Hospital NHS Trust

Contract period: 2005 - 2007

Description: Construction of a new four-storey building at Basildon Hospital providing 14,000 m² of space over 600 rooms to accommodate four specialist theatres for heart and other major chest surgery, over 100 beds with half in single rooms, a large critical care unit, catheterisation labs for complex cardiology investigations and procedures, day care services, teaching space, car-parking facilities, overnight facilities for relatives.

Contractor: BAM Construct UK

BETTER INSIGHT

INTO PEOPLE, BY PEOPLE