



Plot 23 - Gutenborg, St Petersburg



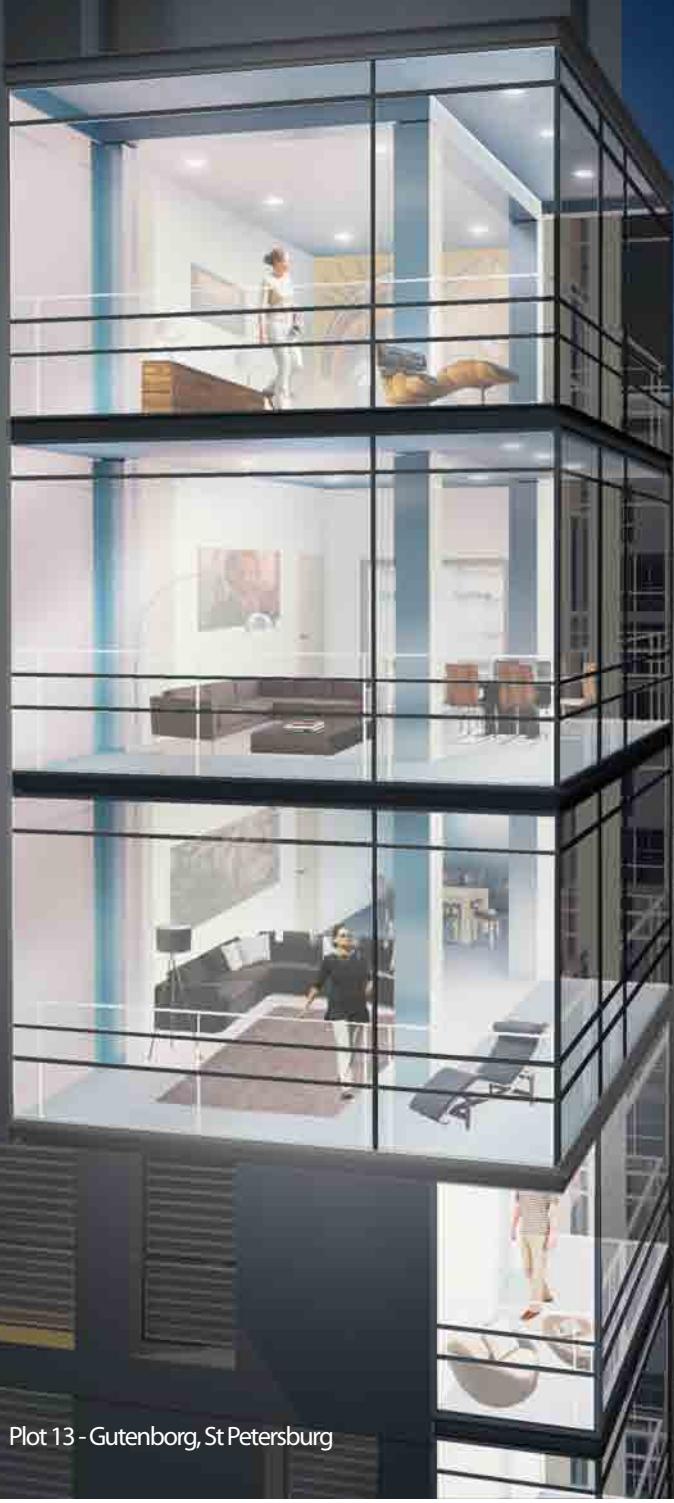
Plot 11 - Gutenborg, St Petersburg



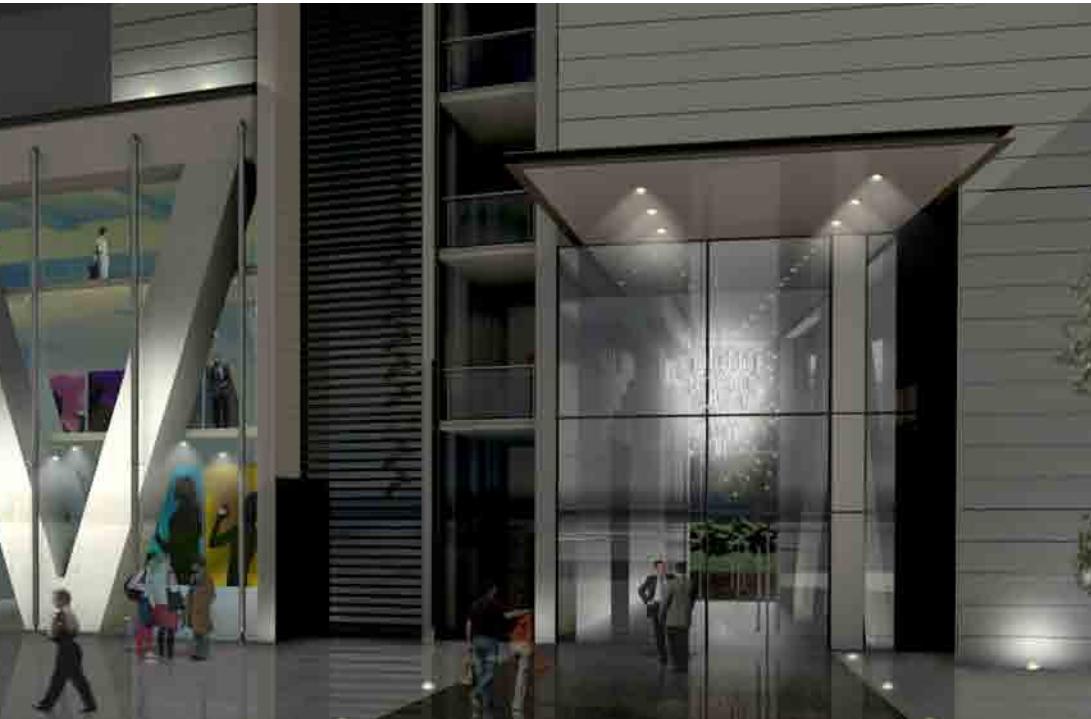
Plot 13 - Gutenborg, St Petersburg



Plot 24 - Gutenborg, St Petersburg



Plot 13 - Gutenborg, St Petersburg



Plot 9 - Gutenborg, St Petersburg

Gutenborg, St Petersburg

Client - SPb Renovation

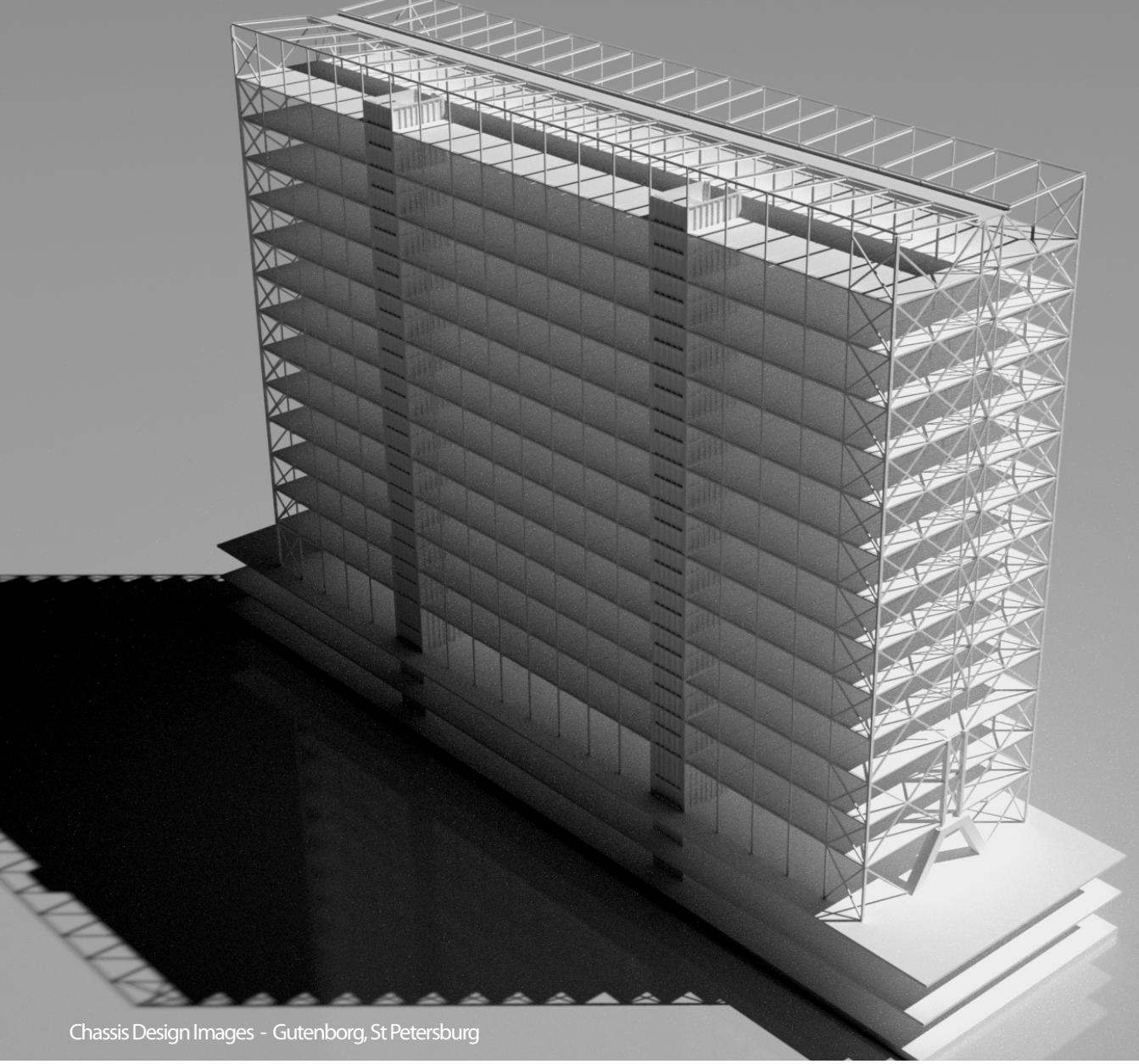
At the beginning of 2013 Bryden Wood were appointed by SPb Renovation as the key design consultant for delivery of the Gutenborg development in St. Petersburg, Russia. Gutenborg is the first stage of a twenty-year construction programme which aims to provide 8,000,000sqm of new residential property across nine new districts throughout the city. Gutenborg, situated on the bank of the river Neva in the south-east of St. Petersburg, will be a vibrant and high quality mixed use district for a projected 22,500 inhabitants. SPb Renovation are using the unique scale of their redevelopment programme as an opportunity to change the culture of the construction industry in Russia, seeking to implement world-leading standards of BIM and Modern Methods of Construction (MMC) through a multi-disciplinary and international design team.

Bryden Wood have been appointed to perform three separate but interrelated design services for the development, working in collaboration with SPb Renovation, Mace (design and construction manager) and the other architectural consultants also appointed to the project. The first appointment is as the architect for the delivery of Lot A comprising eight residential plots. The second is for the provision of full structural and MEP engineering services for all thirty-nine plots, working with the other architectural firms appointed to the development. The third appointment, which is now complete, was for the integrated design of the “chassis” concept. The chassis incorporates the core strategies for structural and MEP systems, architectural form, procurement concept, logistics and BIM implementation. The chassis is the key to achieving the client’s joint aims of quality and innovation on one hand, and efficiency and standardization on the other. The chassis design that has been developed by Bryden Wood is being implemented on all plots comprising the Gutenborg development.

The chassis concept for Gutenborg has provided SPb Renovation and Bryden Wood an opportunity at sufficient scale to address the ‘historic’ issues of systemisation while seeking a complete solution that accentuates the positive benefits of systemisation while eliminating the potential for failures.

The approach Bryden Wood has taken in the development of the chassis has been one of applying standardisation where the benefits are greatest, and flexibility where necessary, in order to deliver a stimulating environment internally and externally. In short, the further inward from the outer skin of the building the more the design and engineering is standardized. This allows greater freedom for external appearance while maintaining pre-manufactured repeat reliability to core services and structure.





Chassis Design Images - Gutenborg, St Petersburg



It is universally accepted that greater efficiency of construction is possible within all aspects of the building industry but most particularly the residential sector. There have been many well documented attempts to bring ‘production’ efficiencies to the residential sector with mixed results, leaving clients and contractors reluctant to expose themselves to unnecessary risk. Construction systems have often sought to promote standardisation at the cost of aesthetic freedom, and a lack of supporting technology has led to inconsistent quality as well as failures particularly with regard to water penetration and longevity.

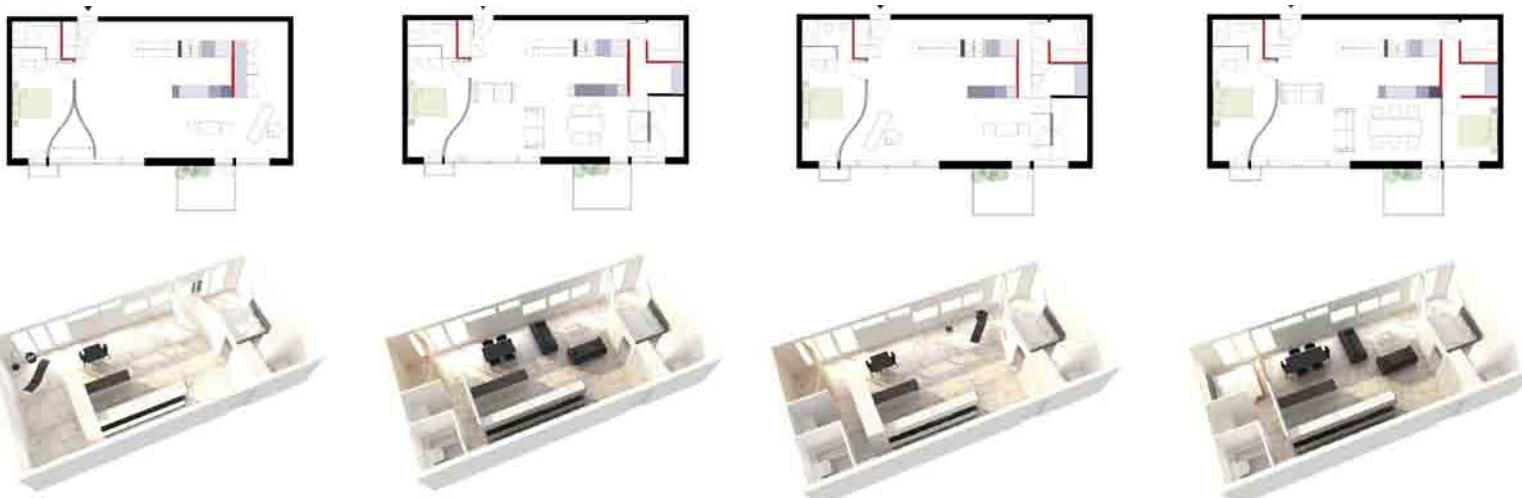
The innovation lies not in the use of ‘untried’ material or details but in the delivery methodology, economy of materials and lack of waste made possible by recent advances in 3 dimensional ‘data-rich’ design.

The superstructure is a hybrid of steel, precast and in-situ concrete that utilises the benefits of each material where their properties are most appropriate. Slender steel columns may be accommodated in party wall lines increasing net to gross efficiency and planning feasibility. Pre-cast beams allow rapid frame erection to be employed while ensuring fire resistance. Pre-cast beams working compositely with the slab (as in a bridge beam) deliver long span capacity and a shallow profile readily accommodated in a typical ceiling zone.

At basement, ground and lower levels a number of additional components have been developed to increase the dimensions of the structural grid without recourse to costly load transfer for the accommodation of other uses e.g. retail spaces, services plant, car parking, clinics etc.

Reduced erection periods allow parallel installation of MEP, fit-out and finishes reducing overall construction periods by up to 50% (when compared to traditional flat slab construction). The frame components are highly repetitive promoting reduced cost, increased quality, and the consistent accuracy of erection crucial for efficient MEP installation to cladding panels and erection of internal partitions.

Internal partitions may be added, moved or removed over the life of the building without compromising the core structure. This allows apartment configurations to adapt with the needs of the residents over the design life of the building. An apartment may therefore develop from a ‘loft’ style single bedroom unit to two or three bedrooms over time without highly disruptive construction work. This flexibility over time is also supported by the provision of structurally clear spans and multiple services route options.



Parallel to this construction efficiency, the Gutenborg chassis principles enhance the ability of design to provide a framework for collaboration and reduced fees. As outlined above the standardisation of ‘core’ elements ensures ‘single point’ engineering consistency while a set of simple rules allow architects sufficient freedom to manipulate the internal plans and facades in order to provide a myriad of spatial and aesthetic outcomes.

The Gutenborg development is currently ongoing with a number of plots in various stages of design development, from concept approval to Expertise (building control). The full team of design consultants have been appointed and the Chassis system has been incorporated into all plots across the development. The project is being developed in a collaborative BIM environment allowing efficient communication across plot teams as well as with horizontal infrastructure designers and Mace as design manager. Construction on the first plots will commence in 2014 with the project acting as the catalyst for the city-wide redevelopment programme of SPb Renovation.

Gutenborg, St Petersburg

