



**RTNC**  
Consultores de Engenharia, Lda



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RTNC

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# **RTNC** is an engineering consultants' office able to meet all the design, control and project management needs of real estate developers.

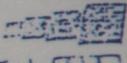
RTNC was founded by a group of engineers in 1988 to put its acquired know-how at the service of investors, seeking to identify fully with the objectives and interests of its clients, supporting them throughout the construction process with rigour and dedication, treating their investments as if they were their own.

RTNC prides itself on being independent and equidistant from all contractors, and the close relationship and lasting alliances established with its clients are the best proof of this independence. Our staff cooperates in multidisciplinary teams, which makes for quick and efficient responses.

RTNC's mission is to provide efficient, high-quality services. Based on the continuous search for the best solutions that simultaneously include technical, financial, environmental and safety aspects, RTNC's work is geared towards controlling construction quality, costs, and execution deadlines.

RTNC's goal is to satisfy the requirements and needs of its clients. Our aim is to create added value in a dynamic, competitive, and transparent way, to consolidate the client's successes and turn them, with integrity and competence, into RTNC's successes. Only thus can both RTNC and the client grow sustainably.



 FIAT ENGINEERING  
GRUPPO FIATPREST



RNC Consultores de Engenharia, Lda



APLA Planeamento e Arquitectura Lda.



Luis Malheiros da Silva  
PROJECTO E GESTÃO DE INSTALAÇÕES ESPECIAIS, LDA

Título:

IVECO  
PORTUGAL

CENTRO DE FORMAÇÃO DO PESSOAL TÉCNICO  
E COMERCIAL.

OFICINA DE MONTAGEM E REPARAÇÃO DE VEÍCULOS,  
ARMAZÉM DE PEÇAS, ESCRITÓRIOS ADMINISTRATIVOS  
E COMERCIAIS.

# **RTNC can provide services inherent to the entire building process.**

The versatility of the services provided by RTNC allows you to hire just the services you need, a set of tailor-made services or even all the services at your disposal.

Whether in new developments or refurbishing existing heritage, you can count on RTNC to ensure quality execution, guaranteeing deadlines and the expected costs.

# PROJECTS

Develop, assess, and validate

**Develop all the necessary projects and promote interoperability between all the multi-disciplinary teams granting design compatibility:**

- Architectural design
- Structural
- Electrical
- Communications
- Security
- Plumbing (water, sewage, and gas)
- Mechanical installations (HVAC)
- Thermal and Acoustic behaviour
- Urbanisation

Assess and review third-party projects

Project coordination and compatibility

**Management assisted by Building Information Modelling (BIM):**

- Modelling of existing projects on BIM platforms (3D)
- BIM-assisted design validation

Municipality and regulatory licensing process assistance

# TENDER

Call for tender, negotiation and procurement

**Preparation of tender procedures:**

- Letter of invitation
- Tender programme
- Specifications
- Legal and administrative conditions
- Other documents needed to conduct the project

**Selection of contractors to be invited, depending on the type of work**

**Call for tender**

**Support during the tender phase:**

- Clarifications to bidders
- Receiving, opening, and analysing bids

**Award proposal:**

- Analysing and clarifying bidders' proposals
- Drawing up a report with a proposal for the award of the contract

**Drawing up the documents leading to the signing of the contract**

# WORKS

Coordination, management, and supervision

## Technical control of works:

- Monitoring and supervision (full time, if necessary)
- Coordination of construction contracts
- Analysis and review of planning
- Approval of planning

## Financial control of works:

- Analysing work measurement records
- Execution of periodic accounting sheets

## Administrative management

## Health and safety coordination

## Property Technical Data Sheets for obtaining housing permits

## Provisional and final acceptance of works:

- Site inspections to detect anomalies to be corrected
- Repair inspection of detected anomalies
- Drawing up the acceptance report

**The entire building development is managed  
by RTNC, in harmony with the client.**



With a portfolio of works spanning **more than 35 years**, we present the most significant works in which RTNC intervened.

PROJECTS FOR NEW DEVELOPMENTS

PROJECTS FOR BUILDING REFURBISHMENTS

COORDINATION, MANAGEMENT AND SUPERVISION

CONSULTANCY

# PROJECTS FOR NEW DEVELOPMENTS

Multidisciplinary project services, as a whole  
(global projects), or only specific projects.

## GLOBAL

Multidisciplinary projects

Use of empty bottoms for housing in Baixa da Banheira, Gondomar and VN Gaia

Training centre for IVECO PORTUGAL technical and commercial staff, Vila Franca de Xira

IVECO PORTUGAL workshop and parts warehouse, Vila Franca de Xira

IVECO PORTUGAL administrative and sales offices, Vila Franca de Xira

MARBAN fruit warehouse, Alverca

Fruit warehouse for MARTINS & SANTOS, Fundão

Fruit warehouse for COVIFRUTAS, Fundão

Headquarters of the Grupo Desportivo e Recreativo da Bela Vista (GDRBV), Setúbal

Commercial premises in the Setúbal Integrated Plan

Headquarters of the CRIVA, Baixa da Banheira

Theatre Hall in the Setúbal Integrated Plan

Extension of the HOTEL MUNDIAL (\*\*\*\*), Lisbon

## **STABILITY**

Structural projects

Mira Sintra housing estate (96 dwellings), Agualva-Cacém

CLUB VII sports and recreational facilities, Lisbon

Seven residential buildings in Laveiras, Caxias

Sports pavilion of the LISBON CAMPING CLUB, Lisbon

Housing complex (96 dwellings) in Quinta do Lactário I, Lisbon

## **ELECTRICAL**

Electrical installation, communications, and security projects

Housing complex (96 homes) in Mira Sintra, Agualva-Cacém

Housing complex (72 homes) in Mira Sintra, Agualva-Cacém

Sports and recreational facilities at CLUBE TAP-AIR PORTUGAL, Lisbon

New facilities at BERGEAUD PORTUGAL, Massamá

CLUB VII sports and recreational facilities, Lisbon

CLUBE DE CAMPISMO DE LISBOA sports pavilion, Lisbon

SOLPLAY flat hotel (\*\*\*\*), Linda-a-Velha

## **PLUMBING**

Water, sewage and gas projects

Sports and recreational facilities for CLUBE TAP-AIR PORTUGAL, Lisbon

New facilities for BERGEAUD PORTUGAL, in Massamá

CLUBE DE CAMPISMO DE LISBOA sports and recreational facilities, Lisbon

CLUBE VII sports and recreational facilities, Lisbon

SOLPLAY flat hotel (\*\*\*\*), Linda-a-Velha

Residential complex (96 flats) in Quinta do Lactário, Lisbon

## **MECHANICAL**

Mechanical installation projects

Sports and recreational facilities at CLUBE VII, Lisbon

SOLPLAY flat hotel (\*\*\*\*), Linda-a-Velha

## **URBANISATION**

Urbanisation projects

Urbanisation infrastructures, Vialonga

Roads in the Zambujal Integrated Plan

Urbanisation infrastructures in Laveiras, Caxias

Urbanisation plan for Herdade do Montalvo, Alcácer do Sal

Roads for the headquarters of IVECO PORTUGAL, Vila Franca de Xira

## PROJECTS FOR BUILDING REFURBISHMENT

Multidisciplinary project services for the conservation, restoration, or alteration of buildings. This service may include pre-existence surveys.

Bairro da Atalaia (67 dwellings), Faro

Housing estate (54 dwellings), Tavira

Bairro dos Assentos (64 dwellings), Portalegre

Housing complex (54 dwellings), Cabeço de Vide

Vale da Amoreira housing estate (604 dwellings), Baixa da Banheira

Mira Sintra housing estate (142 dwellings), Agualva-Cacém

Biquinha housing estate (256 dwellings), Matosinhos

Housing complex in Rua das Mäes d'Água, in the Zambujal Integrated Plan

Bairro 20 de Julho (246 dwellings), Setúbal

Bairro do Pinhal (136 dwellings) in Santo André, Sines

## COORDINATION, MANAGEMENT AND SUPERVISION

Site support services, such as coordination of contracts, cost and deadline control and supervision of works

## REFURBISHMENT

Refurbishment of the ESCOLA DE FORMAÇÃO PROFISSIONAL buildings, Almada

Use of vacant funds (82 dwellings) in the Almada Integrated Plan

Refurbishment of the building and fitout of the shop for ARIÉ & FILHOS, LDA, on Avenida da Liberdade, Lisbon

Refurbishment of TORRES DO MAR, S. João do Estoril

Refurbishment of the building at Rua Maria Andrade 20 to 32, Lisbon

Refurbishment of the façades of the Banco BPI building on Av. Casal Ribeiro, Lisbon

Refurbishment of seven condominium buildings in Arco Cego, Lisbon

Refurbishment of the Travessa do Abarracamento Peniche 9 Building, Lisbon

Refurbishment and extension of luxury residential building at Calçada do Galvão 39, Lisbon

Refurbishment and extension of luxury residential building at Rua da Junqueira 223, Lisbon

Refurbishment of 16th century building for HOTEL SANTIAGO DE ALFAMA (\*\*\*\*\*), Lisbon

Refurbishment and extension of commercial building at Rua Áurea 243, Lisbon

## SPORTS AND RECREATION

CLUB VII sports complex: 8 tennis courts, squash courts, swimming pool, gyms and restaurants, Lisbon

JARDIM AMÁLIA RODRIGUES, public garden in Alto do Parque Eduardo VII, Lisbon

Auditorium and sports pavilion at EXTERNATO DE S. JOSÉ, Lisbon

Public garden QUINTA DAS CONCHAS, Lisbon

Woods at QUINTA DAS CONCHAS, Lisbon

## HOUSING

Construction of sixty buildings in Alcoitão and Galiza, Cascais

Construction of three social housing buildings in Portela, Cascais

Construction of six luxury residential buildings in Parque das Nações, Lisbon

Construction of four residential and commercial buildings in Rua Luís Cristino da Silva, Lisbon

Construction of five residential and commercial buildings in Quinta do Alexandre, Sacavém

Construction of eight residential and commercial buildings in Quinta do Lactário, Lisbon

House for Dr. Jorge Bleck at Quinta da Marinha, Cascais

House for Dr. Tiago Drummond Borges at Quinta da Beloura, Sintra

Construction of five residential and commercial buildings on Plot 230 Zone N2 of Chelas, Lisbon

Construction of fourteen residential and commercial buildings in Vale Formoso de Cima, Lisbon

Construction of two residential and commercial buildings in Rua Conselheiro Lopo Vaz, Lisbon

Housing complex, infrastructures and commercial areas in S. João da Talha, Lisbon

Construction of a villa, swimming pool and exterior fittings in Alto de Santa Catarina, Linda-a-Velha

Rehabilitation and extension of a luxury residential building in Calçada do Galvão 39, Lisbon

Rehabilitation of a building (vertical gardens and rooftop swimming pool) in Trav. do Patrocínio 5, Lisbon

Rehabilitation and extension of luxury residential building at Rua da Junqueira 223, Lisbon

Construction of luxury single-family residential building at Travessa do Combro 5, Lisbon

Construction of villa, swimming pool and exterior fittings at Quinta de Alcoutins, Lisbon

Construction of 8 villas, swimming pools and exterior fittings at Quinta da Aroeira, Almada

Refurbishment and extension of luxury residential building at Rua do Centro Cultural 35, Lisbon

## HOSPITALITY

Santa Joana University Housing Complex, Aveiro

Refurbishment and extension of the hotel facilities of the Dominican Sisters, Fátima

Refurbishment of the support buildings and streets of the LISBON CAMPING PARK

Construction of the lake and LINHA D'ÁGUA restaurant in the Amália Rodrigues public garden, Lisbon

Construction of the TAP AIR PORTUGAL (ASASTAP) social complex, Várzea de Sintra

Extension of the HOTEL ESTRELA DA IDANHA (\*\*), Idanha-a-Nova

Refurbishment of 16th century building for HOTEL SANTIAGO DE ALFAMA (\*\*\*\*\*), Lisbon

Renovation of 1st Cafe at Humberto Delgado Airport, Lisbon

Extension and renovation of the Aroma Café space at Humberto Delgado Airport, Lisbon

Extension, and renovation of the Just Arrived space at Humberto Delgado Airport, Lisbon

Refurbishment, and extension of building at Rua Damasceno Monteiro 144, Lisbon

## INDUSTRY AND SERVICES

Industrial warehouse (covered area 5,940 sq m.) MARBAN - Entreposto Fruteiro, Alverca

Fruit warehouse (covered area 1,400 sq m.) MARTINS & SANTOS, Fundão

Fruit warehouse (covered area 1,400 sq m.) COVIFRUTAS, Fundão

BERGEAUD PORTUGAL premises, Massamá

Extension of the BPI Computer Centre on Av. Casal Ribeiro, Lisbon

CascaShopping Refurbishment 2017, Cascais

ALGATEC EcoBusiness Park microalgae production platform, Vila Franca de Xira

## CONSULTANCY

Drawing up independent technical opinions whenever it is necessary to clarify civil engineering issues.

## COST ANALYSIS

Analysis of the estimated refurbishment costs for the CHIADO REMAINING RECONSTRUCTION FUND

Church of the Incarnation

Property located in Largo do Carmo

Property located in Rua da Misericórdia

Property located in Rua da Condessa

Property located in Rua Serpa Pinto

Property located in Rua das Flores

Property located in Rua do Duque

Property located in Rua Ivens

## TECHNICAL SUPPORT

Independent technical support in conflict resolution and data evaluation

Consultants for AROMANOSTRUM at the 1st Cafe at Humberto Delgado Airport, Lisbon

Consultants for UNITAGUS in cases brought by CONTACTO and PARQUE EXPO

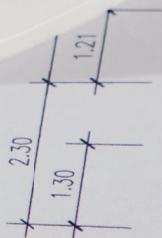
Expertise on the works conducted at the former residence of the British Ambassador, Lisbon

Judicial expertise on conflicts for the Entroncamento Judicial Court

Conflict Expertise for the Alcobaça Judicial Court

Conflict Expertise for the Oeiras Judicial Court

RMNC



PLAN  
SIST  
PL

# Why RTNC? Analyse the return on your investment.

Six projects managed by the company were studied to analyse the return on investment in RTNC's services.

The analysis results in a series of easy-to-read graphs, with a brief previous description.

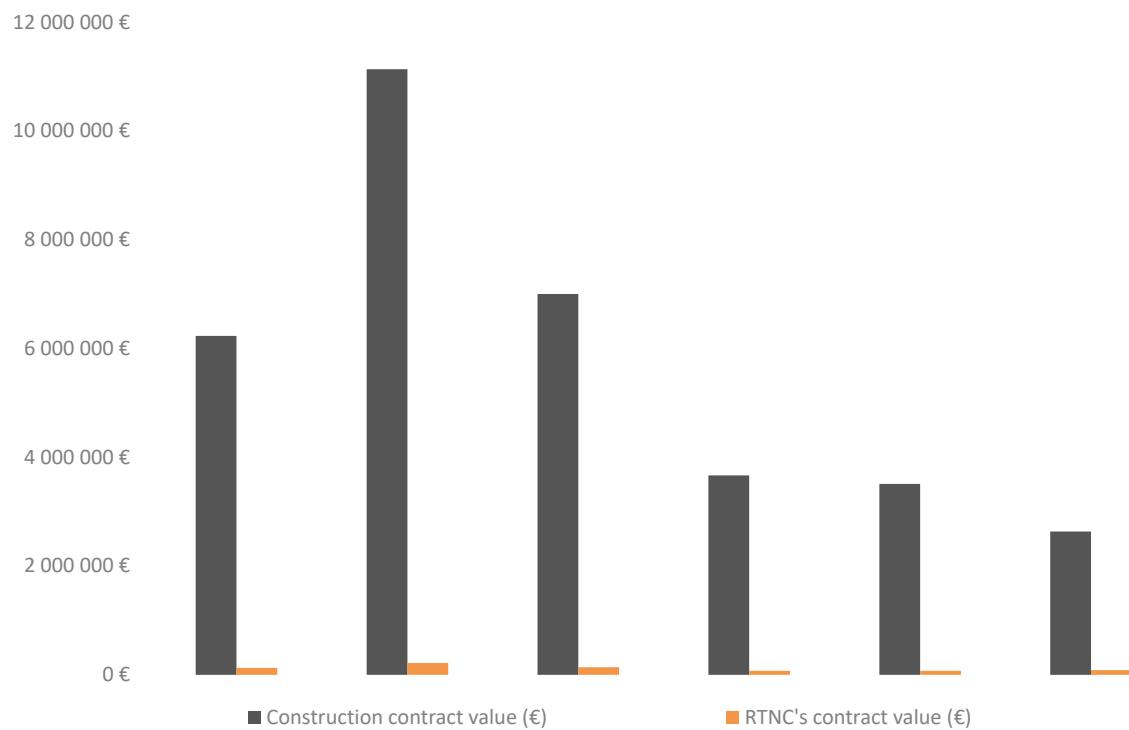
The study universe is all developments completed in recent years with a value of more than €2.5 M.

The projects are not identified for reasons of confidentiality. However, their order remains the same in all the graphs shown.

# INVESTMENT

Consider the cost associated with RTNC services as an investment.

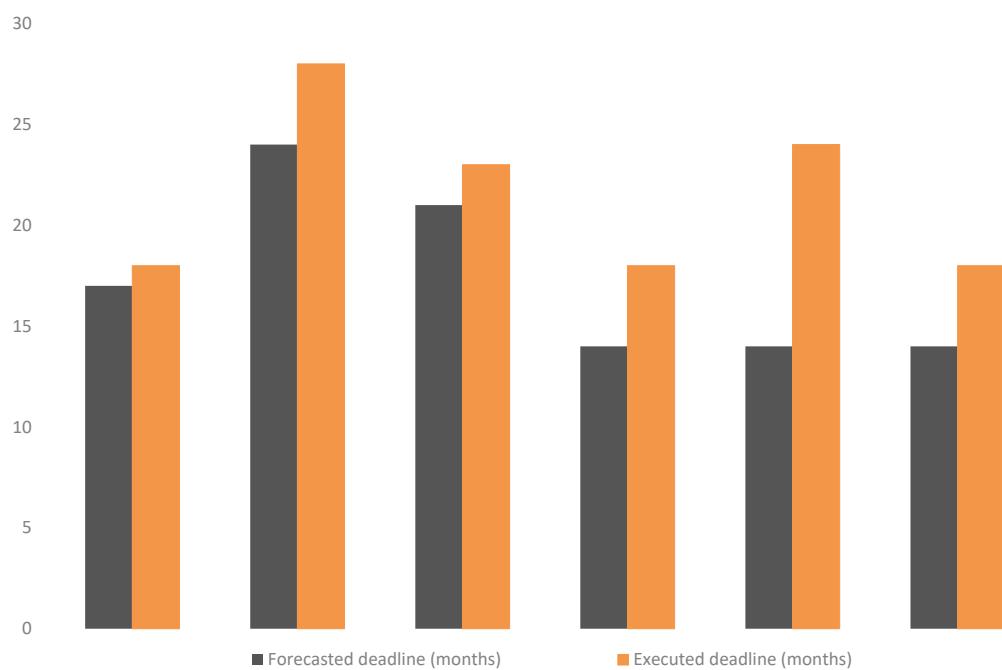
The first graph compares the value of the works contract with the value of the contract with RTNC.



## DEADLINE

All contracts have a **deadline** associated. Failure to meet this deadline can lead to a decrease in the profitability of the investment, so it is essential to avoid deviations.

The following graph shows the construction period in forecasted and executed deadline.



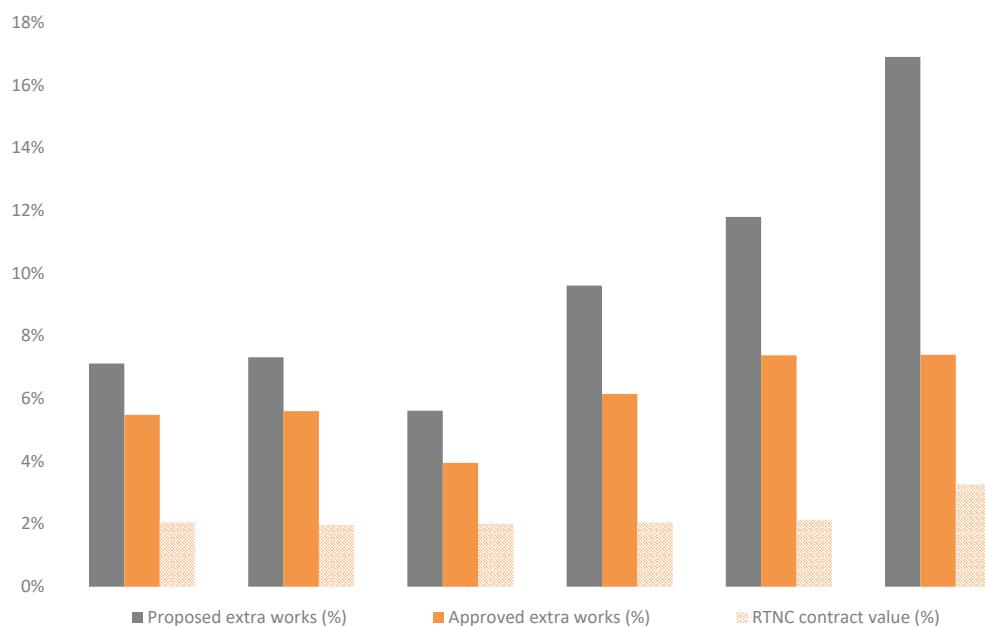
As a percentage, the delays indicated are 17% on average. By way of comparison, it should be noted that the delays in public works recorded in the Portuguese Court of Auditors' Report no. 17/2009 amount to an average of 157%.

## EXTRA WORK

Extra work is the biggest cause of budget overruns and is, therefore, the focus of this study.

According to the same Portuguese Court of Auditors report, the average budget overrun in public works is 128%.

Before being approved by the RTNC, extra works are analysed and discussed with the contractor in terms of quantity, price, and possible extensions of the deadlines entailed. The following graph shows, as a percentage, extra work proposed by the contractor and extra work approved by RTNC. On average, the value of extra work **drops 35% after RTNC intervention**.



## RETURN ON INVESTMENT

The **return on investment** (ROI) is used to evaluate the **viability of the investment** by comparing the profits expected from this investment with the cost associated with its implementation.

Traditionally, it is calculated as the quotient of the difference between the return and the investment, and the value of the investment. The following equation shows RTNC's ROI, **only** by discussing the extra work with the contractor.

$$\text{ROI}_{\text{RTNC}}^{\text{EW}^+} = \frac{\text{Return by RTNC}}{\text{Investment on RTNC}} = \frac{\text{Savings on EW}^+ \text{ by RTNC} - \text{Investment on RTNC}}{\text{Investment on RTNC}}$$

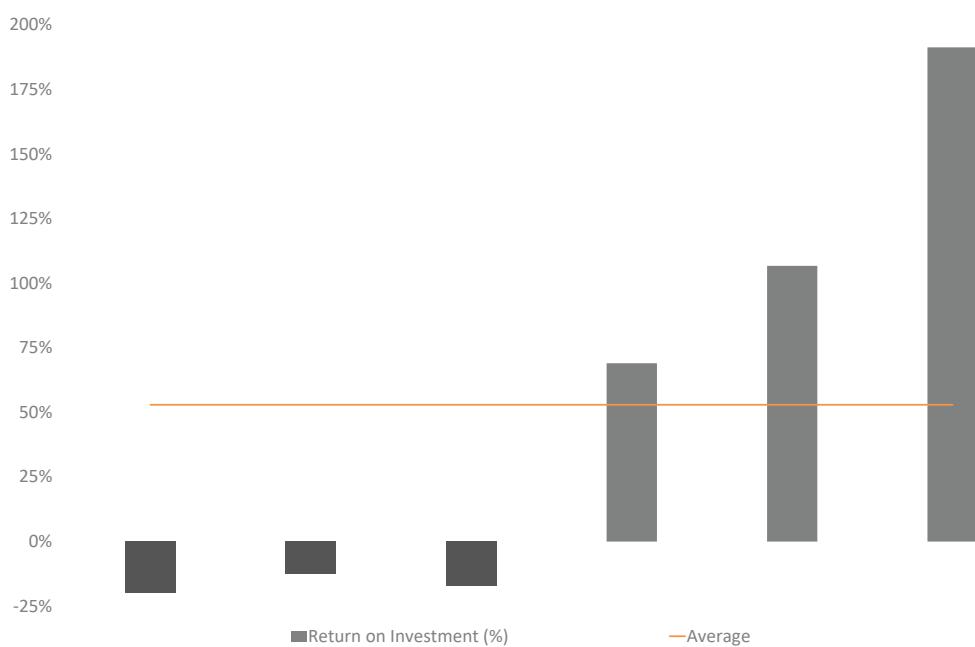
The result obtained is a percentage. If the return is the same as the investment, the resulting ROI is 0%, which means that the client has neither gained nor lost by hiring RTNC.

If its value is greater than 0%, the ROI is considered positive, i.e., the investment in RTNC's services brings a return just by analysing the extra work that RTNC does.

If the ROI is less than 0%, it means that there is no return on investment, i.e., the discussion of the extra work did not bring the client a return on their investment in RTNC.

The following graph analyses the return achieved by just one of the components of RTNC's intervention: the discussion of extra work with the contractor. The investment considered is the value of the contract with RTNC.

It should be noted that this analysis only shows the return due to one of the assorted services included in RTNC's contracts.



From this analysis one can, therefore, conclude that hiring RTNC has a **return on investment** in and of itself, and it can even be said that, just by discussing extra work, RTNC's services not only pay for themselves, but also **save the client money**.

Still to be analysed is the ROI provided by the review and discussion of the tender bids, the security provided using RTNC tender specifications, the control of the construction costs in the light of the various alternative solutions proposed by RTNC (cost engineering), the monitoring and supervision of the works, and the consequent improvement in the construction quality, the delays avoided and, not least, the decision support that RTNC offers the client.



We are at your disposal for **any questions.**

## HEADQUARTERS

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