



**Simple Solutions to Reduce Water Use**

**Balfour Beatty**

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Solvency

March 31, 2010

Mr. David Preston and Ms. Jodi Hedges  
Balfour Beatty

Dear Mr. Preston and Ms. Hedges:

Balfour Beatty's long-term survival as a successful company depends on its sustainability. It was one of the first companies to achieve a Green Contractor Certification, which shows responsibility to society and the environment. Transforming Balfour Beatty into a sustainable company will require a collective change of direction and behaviors throughout each division and with all employees.

In an increasingly environmentally conscious industry, Balfour Beatty's sustainability will have a major impact on winning new business and overall profitability. To remain a leader in green construction, Balfour Beatty must constantly acquire new knowledge and new technologies. To increase this knowledge, we should measure how well Balfour Beatty currently uses their resources.

In our proposal, we will demonstrate our understanding of Balfour Beatty's current situation and propose solutions. Balfour Beatty is a strong company that we can help to become even stronger. We look forward to hearing your thoughts and opinions soon.

Sincerely,

John E. Morgan  
Project Manager,  
Solvency

# PROJECT

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## HOW BALFOUR BEATTY CAN REDUCE WATER USE

APRIL 22, 2010

PREPARED FOR: David Preston  
Jodi Hedges

PREPARED BY: Michael Frerichs  
Casey Lightford  
John Morgan  
Eden Perkins

# DESCRIPTION

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Balfour Beatty seeks to reduce water use to help increase sustainability by 2012. You need to change behaviors within the company and seek to influence clients to reduce water use. We intend to provide methods for these improvements to Balfour Beatty.

Proposal Number: 129-2010

# EXECUTIVE SUMMARY

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To reach sustainability excellence in 2012, Balfour Beatty must establish an understanding of your total water footprint and achieve a 10% reduction compared to the 2010 baseline. Balfour Beatty can change wasteful practices to help reduce water consumption. We have identified several procedures that you can change and how you can change them.

The solution we propose to Balfour Beatty includes:

- Gathering information about sustainable materials
- Presenting sustainable choices to clients and building management
- Changing behaviors of employees

To stay informed about sustainable solutions, Balfour Beatty needs to have the most accurate, up-to-date information available. To do this, you can use a no-cost source of information about environmentally and economically sound materials called BEES 4.0.

Balfour Beatty can reduce water used in buildings that you build and in buildings you occupy. Though you lack complete control over client and building management choices, Balfour Beatty does have a great amount influence that you can use to help others make more sustainable decisions. Balfour Beatty can suggest environmentally friendly materials and appliances to building management and clients, which will help to improve sustainability.

Changing employee behaviors in the office and on the job site requires the collaborative effort and willing spirit in which Balfour Beatty prides itself. Balfour Beatty can implement the informative campaign we have created to teach employees simple but effective ways to conserve water every day.

Balfour Beatty will benefit from choosing Solvency's program to educate employees, clients and building management because of small costs and big results.

# SITUATION

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Balfour Beatty aims to reduce water use throughout the company. You use water at every stage of a construction project. Balfour Beatty can reduce water usage directly on a job site, throughout the life of a building, or in internal operations, which will help to reduce waste. Some processes in construction have no alternative to using large amounts of water, but Balfour Beatty can reduce water use through many different means on and off the job site.

To reduce water use throughout the company, Balfour Beatty needs to know about processes, appliances, and areas that waste water. We can research these areas of inefficiency and solutions to combat waste. The company has implemented water saving techniques in some areas recently (i.e. single-cup coffee makers and water coolers with no bottles), which have worked very well. Balfour Beatty can put these practices into action throughout the entire company to achieve even greater results.

Balfour Beatty also strives to build sustainable buildings. We can research environmentally friendly solutions to water waste, which you can in turn suggest to clients and the managers of the buildings you occupy. Balfour Beatty can suggest simple solutions that will lead to more sustainable construction as well as higher LEED certifications while also saving the client money.

Any amount of information gathered about water waste would be useless without a way to distribute that information. Balfour Beatty will benefit from an educational campaign directed toward employees because it will keep water saving techniques in the minds of employees. Balfour Beatty's current method of educating employees about environmental issues seems effective, and we aim to expand on it. By creating a consistently environmentally conscious atmosphere, Balfour Beatty can improve your sustainability and reduce water waste.

# SOLUTION

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The solution to reducing Balfour Beatty's water use has three parts. These include gathering information about sustainable materials, presenting sustainable choices to clients and building management, and changing behaviors of employees. All three steps are crucial in Balfour Beatty's efforts to reduce water usage.

## GATHERING INFORMATION ABOUT SUSTAINABLE MATERIALS

Before Balfour Beatty can reduce water usage, you need information about more sustainable materials. This information needs to answer questions about where to get more environmentally friendly materials, how economically feasible they are, and benefits of using said supplies.

To find this information, Balfour Beatty can use the government-run database called BEES. This service analyzes all stages in the life of a product: raw material acquisition, manufacture, transportation, installation, use, and recycling and waste management. They measure economic performance using the ASTM standard life cycle cost method, which covers the costs of initial investment, replacement, operation, maintenance and repair, and disposal. They combine environmental and economic performance into an overall performance analysis. This database currently has information about sustainable materials and analyzes that information not only by the environmental impact of the product, but also by the economic impact to you as well.

BEES has not been updated since 2007, so it may not have the most up-to-date information. However, we have confirmed with Barbara Lippiatt (the site creator) that they will have a free web-based update later this year. This database will give Balfour Beatty the information you need to advise clients about sustainable, cost efficient materials.

## PRESENTING SUSTAINABLE CHOICES TO CLIENTS AND BUILDING MANAGEMENT

Balfour Beatty holds influence over the decisions of their clients and the management within the buildings you occupy. To increase sustainability, Balfour Beatty should make the most of this opportunity. You can steer clients into more environmentally conscious choices by offering products that improve water savings.

Solvency can do the research to find competitively priced products like dual flush toilets, computerized weather control units, or aerated faucets which have already been placed in commercial buildings successfully. These additions can help clients build more ecologically friendly buildings that will save them money in the long term. Balfour Beatty can apply many of these same products in the office. Balfour Beatty has convinced building management to make environmental changes to your offices in the past. This shows a level of influence that you can use to improve sustainability in the office.

Balfour Beatty can integrate these products into the designs of their clients and building management for very little cost and often times, minimal effort.

## CHANGING BEHAVIORS OF EMPLOYEES

Using a database and influencing clients gives Balfour Beatty a great head start on water use reduction. However, to have a greater impact on water use, Balfour Beatty needs to modify employees' behaviors and habits. To achieve sustainability, Balfour Beatty employees need to become aware of where they can save water. Any one of the employees at Balfour Beatty can make a difference in water conservation.

A non-intrusive program designed to teach employees about many ways to conserve water around the office can benefit Balfour Beatty by raising awareness. In this proposed campaign called Simple Suggestions, we plan to advise employees about small, easy ways to save water around the office. The campaign will consist of strategically placed posters that inform the reader about a behavior they can change in that specific area of the office. Solutions as simple as putting less ice in your drink or turning off the water while lathering hands make this program immediately beneficial. Through these small changes, Balfour Beatty can save thousands of gallons of water every year.

While touring your office building and jobsite trailers, we found that you already have implemented several water-conscious solutions in some areas. Some include water coolers without the water bottles and single-serve coffee machines. These solutions that you have already implemented benefit Balfour Beatty, but to receive the most benefit from these actions, we propose that all areas of the business start using these ideas consistently. The savings that Balfour Beatty earns can become even greater through uniform implementation.



## QUALIFICATIONS

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Michael Frerichs, a Computer Science major, will be graduating in December from the University of North Texas. He has developed computer software and presented cache memory research to the Net-Centric Consortium. He has done extensive research and written a white paper on implementation of customer surveys within the construction industry.

Casey Lightford, an English major with a concentration in Technical Writing, has worked as a Technical Writer for 3 years in the Financial Aid Department at the University of North Texas and continues editing documents. He has written a white paper based on his extensive research concerning the effects of direct water use within the construction industry.

John Morgan, an English major with a concentration in Creative Writing, will complete his Technical Writing certification upon graduating in December. He has done extensive research and written a white paper on creating and administering surveys.

Eden Perkins, a General Studies major, will complete her certification in Technical Writing at the end of the semester. She has worked with Concentra, Inc. and currently working on a project for Sabre Airline Solutions. She has done extensive research and written a white paper on the effects of indirect water use within the construction industry.

## CONCLUSION

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Balfour Beatty's leadership in Green Construction and sustainable business practices make a solid foundation for learning more about water use reduction. We look forward to working with you in an effort to achieve your goals, and hope to hear from you soon with any questions or comments.