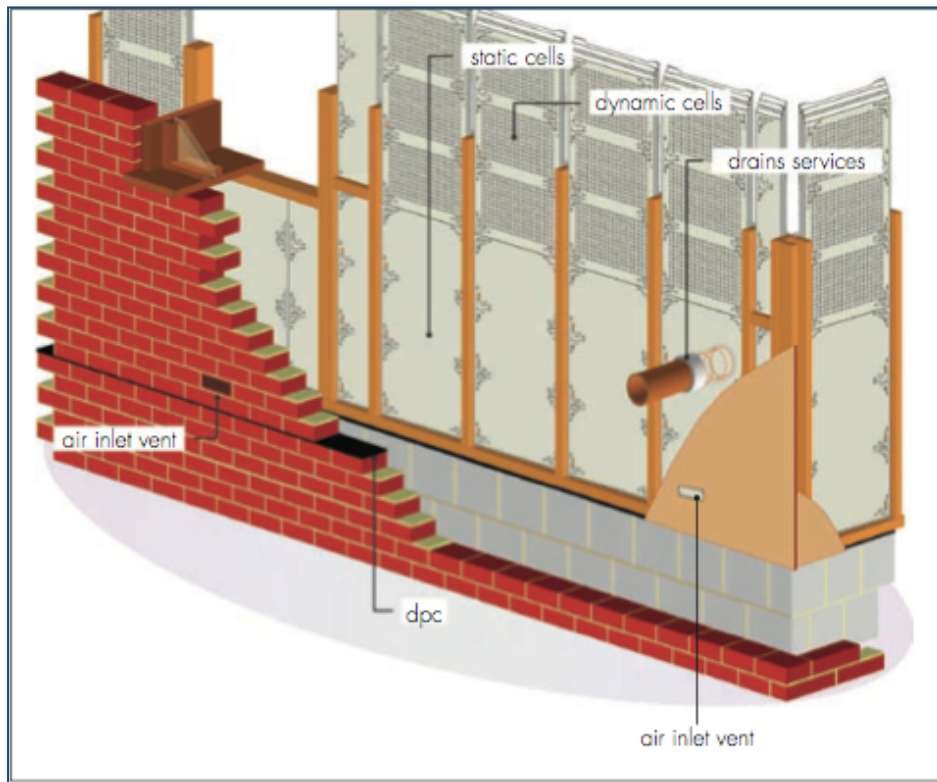


FEASIBILITY STUDY: Environmental Building Partnership Ltd (EBP)



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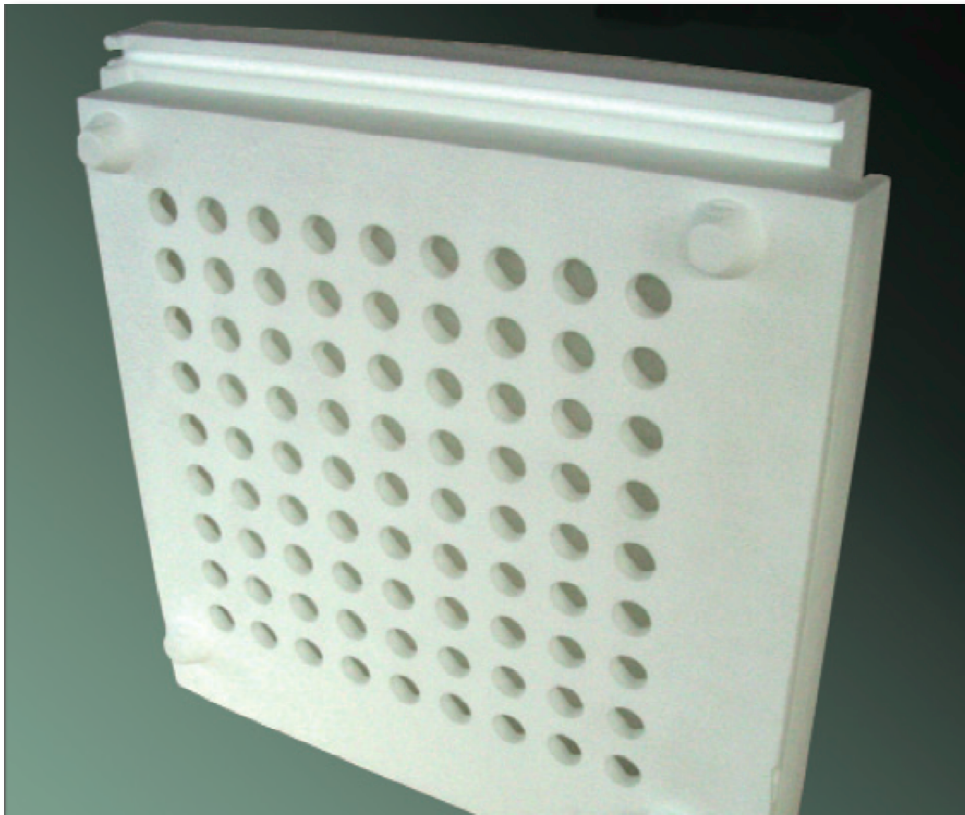
1. The Environmental Building Partnership

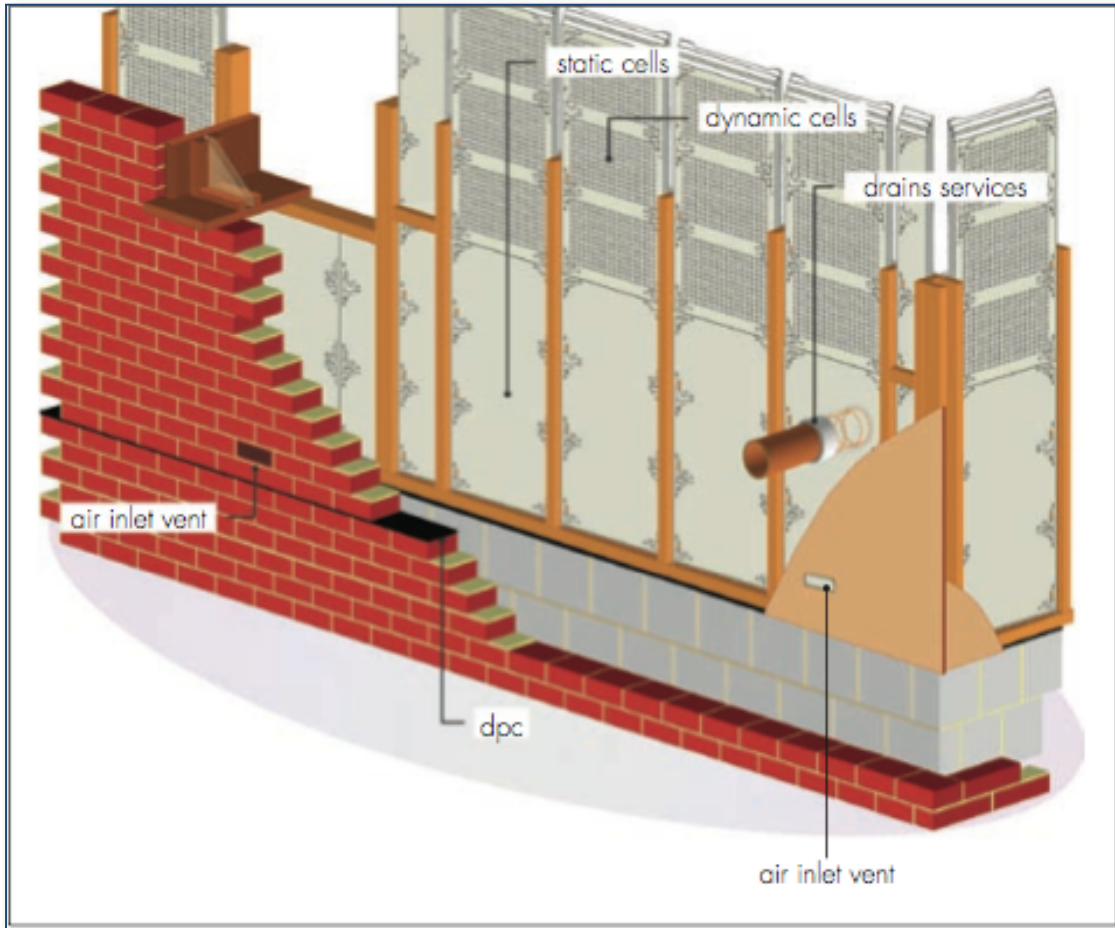
The Environmental Building Partnership (EBP) is a building engineering consultancy that specialises in innovative technology and low energy products and services. They have developed a product (The Energyflo™ cell – see below) which replaces traditional wall insulation and allows building walls to function as air filters, while reducing heating costs and energy consumption.

EBP is seeking an investment of £400k to support product development and business operations. This feasibility study recommends the EBP as an investment as it has a valuable idea with many user benefits and a well thought out development plan.

The following pages includes a set of tables listing the main points of the EBP strategy. On the left hand side are any reported developments or issues, and the left indicates whether this is likely to represent a positive, negative or critical (potential project failure) issue for the company. The tables have been divided under an appropriate selection of broader headings.

This work has been carried out by only using publically available sources of information, from web-sites and promotional materials.





Typical Installation of EBP cells

2. Identification of Benefits – Heat Flow Reduction and Energy Saving;

2.1 Reported Developments and Issues			
	Feature	Benefit	Likely impact on project – Good, Bad or Critical?
2.1.1	Cuts heat flow through the building fabric.	Reduces running costs as less energy is needed to heat or cool the building.	Good – Provides savings of up to 40% of operational temperature control energy.
2.1.2	Converts external wall into ventilation source for building.	Simplifies air handling procedures, reducing capital costs.	Good
2.1.3	Provides lifetime filtration of particulate matter.	Cleaner, healthier, more environmentally friendly buildings without an increase in energy use.	Good

2.2 Further Comments

‘Buildings account for approximately 40% of the carbon emissions in the UK, with non-domestic buildings responsible for approximately half of this... improving energy efficiency in non-domestic buildings is a major opportunity for cost-effective carbon reduction.

That’s why we’ve been working with real projects to build the commercial case and examine the barriers for low-carbon buildings: both refurbishment of the existing stock and new low-carbon buildings.’

From the web-site of the carbon trust

<http://www.carbontrust.co.uk/emerging-technologies/current-focus-areas/buildings/pages/buildings.aspx>

Again, better building design can have a massive benefit to the environment and to the individual customer (they may soon be asked to pay for carbon credits reflecting their CO2 output).

These benefits are appealing to the expected purchasers and users of the new technology and are offered at an affordable price to the target markets.

3. Commercial Potential of the Project

3.1 Requirement to improve wide variations in building efficiency

Reported Developments and Issues	Action required & likely impact on project – Good, Bad or Critical?
<p>3.1.1 The new technology complies with modern building standards and practices and proofs existing construction methods against 2008 regulations and beyond.</p>	<p>Good – The technology meets safety and practical requirements. (The “chicken-gun” test)</p>
<p>3.1.2 Market research has already been done and identified school construction and social housing as early adopters of the new technology.</p>	<p>Good – EBP has successfully secured demonstration projects with a house builder and a local authority to help them access these market segments.</p>
<p>3.1.3 EBP is partnering with a major engineering consultancy on PFI school projects.</p>	<p>Good – By partnering with an established company EBP has instant access to a number of project contracts in their target market. This will help them attract more business and also provide initial income.</p>
<p>3.1.4 EBP's technology is suitable for all building types in the commercial, industrial and domestic sectors.</p>	<p>Good – The technology has potential for expanding further into other market segments - EBP hope to gain 5% of the global insulation market by 2015.</p>
<p>3.1.5 EBP is planning to appoint a CEO with relevant construction industry background to direct the marketing strategy.</p>	<p>Good – EBP has recognised a gap in their team and is working to correct it. Bad – With an undecided marketing strategy it is unclear how the figures for the global insulation market were estimated and they may be from an inaccurate top down approach. Critical – Failure to appoint a CEO quickly may lead to expensive delays in fully launching the project on the market.</p>
<p>3.1.6 EBP's technology is cheaper but performs as well as other air filtering systems (such as HEPA filters), and also reduces heating costs.</p>	<p>Good – EBP is ahead of other competitors on the market as their technology provides a unique combination of features and benefits which are useful in a wide range of market segments.</p>

3.2 Business Models – partnering with engineering consultancy

Reported Developments	Likely impact on project – Good, Bad or Critical?
3.2.1 EBP has partnered with an engineering consultancy working on school projects.	Good – This gives them an existing market share to introduce their product and an opportunity to make large profits quickly.
3.2.2 EBP plans to become part of the design team for building projects.	Good – This allows EBP to get their project out to a wider market using their existing technical skills and will also allow larger profits.
3.2.3 EBP has partnered with a manufacturing company, LINPAC.	Good – By contracting a partner company to supply the EnergyFlo™ cells, valuable extra revenue is generated in the form of product sales. Bad – The partner company may be unreliable and produce the cells slowly or to an insufficient standard.

3.3 Further Comments

EBP appear to recognise the full potential of their technology and are using different business models to use this to advantage, however their aims in mid-term and longer-term market strategy are unclear.

Table 5. Typical and good practice energy consumption in offices in the UK.

	kWh/m ² of treated floor area							
	Type 1		Type 2		Type 3		Type 4	
	Good practice	Typical	Good practice	Typical	Good practice	Typical	Good practice	Typical
Heating & hot water	79	151	79	151	97	178	107	201
Cooling	0	0	1	2	14	31	21	41
Fans, pumps and controls	2	6	4	8	30	60	36	67
Humidification	0	0	0	0	8	18	12	23
Lighting	14	23	22	38	27	54	29	60
Office equipment	12	18	20	27	23	31	23	32
Catering	2	3	3	5	5	6	20	24
Other electricity	3	4	4	5	7	8	13	15
Computer room	0	0	0	0	14	18	87	105
TOTAL	112	205	133	236	225	404	348	568

Based on DETR (2000b) *op cit*.

4. Potential Human Factors

4.1 Reported Developments and Issues	Likely impact on project – Good, Bad or Critical?
<p>4.1.1 The EBP company has a named Projects Manager, Andrew Peacock.</p>	<p>Good – The company has a dedicated Project Manager, indicating that there will be a single person in charge of and responsible for organizing and monitoring the project development.</p>
<p>4.1.2 EBP has expertise in building services, structural services and low energy design, and is seeking to hire a Marketing CEO with relevant construction industry experience.</p>	<p>Good – the company has specialists in a number of relevant fields. This will help them develop products that have appropriate benefits and degree of user-friendliness for the intended market, and allows them to use consultancy as a route to market.</p>
<p>4.1.3 The company founders have extensive previous experience of successful UK and International building design, research and technology development projects.</p>	<p>Good – they will have a realistic idea of the management, development, funding and resource needs of this type of project.</p>

4.2 Further Comments

The company also shows a good structure of divided responsibility in other important areas, such as design and commercialisation.

5. Potential Project and Development Issues

5.1 Prototype successfully completed

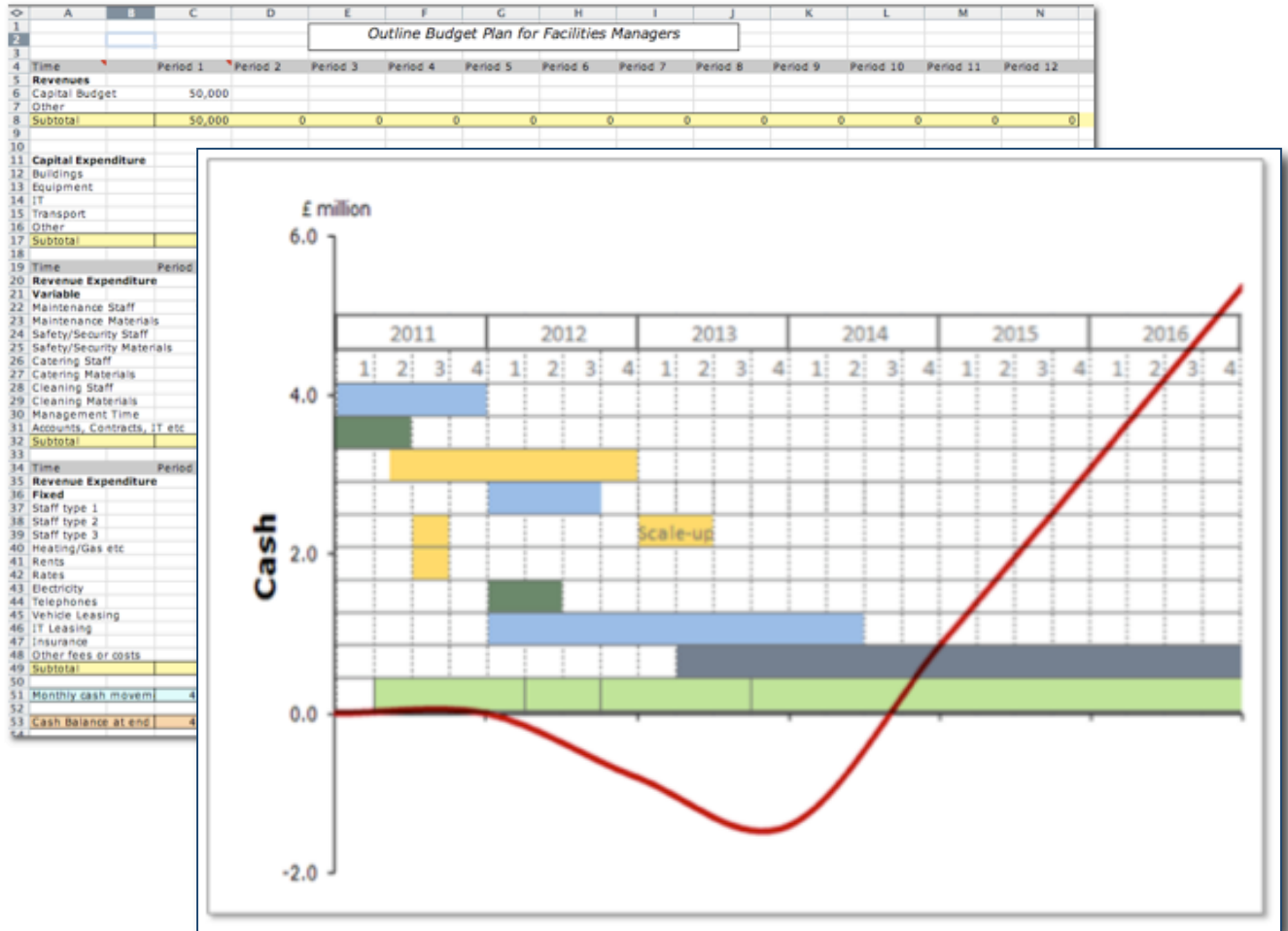
Reported Developments	Likely impact on project – Good, Bad or Critical?
<p>5.1.1 The prototype design phase has been successfully completed.</p>	<p>Good – The idea and technology for the project are sound, so there are few critical stages left that could result in project termination.</p>
<p>5.1.2 Nothing is mentioned in the company website about failure potential of the cells or any available remedies if this happens.</p>	<p>Bad – If some of the cells fail to work or stop working, how is this addressed in terms of the lifetime guarantee? What tests have been done on the cells’ long term performance? How easy is it to perform maintenance or replace cells, and who would do this or pay for this? (EBP /LINPAC/ Customer?) Do the cells have a negative effect if broken or damaged?</p>
<p>5.1.3 The company has clear goals concerning its market and financial targets, including gaining 5% of the global insulation market by 2015 and breaking even in 2007.</p>	<p>Good – Well defined targets will help to pull the project forward and allow early addressing of problems if the project falls behind schedule. Bad – These targets may be based on a top down market approach and be unreliable.</p>
<p>5.1.4 Although early and eventual targets are declared, the company does not fully discuss it’s midterm goals.</p>	<p>Bad – Not having a defined midterm plan makes it less likely that the company will reach it’s final targets.</p>

5.2 Further Comments

The company needs to show how it plans to achieve its ambitious long term targets.

6. Potential Project Budget – Revenues of £4 million pa by 2016

6.1 Investment of £2 million required over 4 years



There is a separate project budget available as an Excel Workbook detailing projected costs and revenues of the project. The investment required is around £2m from now until 2013, after EBR starts to generate cash and operating profit. By 2016, revenues are expected to reach £4million, with very low overheads.

7. Intellectual Property (IP)

Reported Developments	Likely impact on project – Good, Bad or Critical?
7.1.1 EBP's unique dynamic insulation technology is already patented, and the EnergyFlo name is trademarked.	Good – the technology is protected and building projects can go ahead.
7.1.2 EBP is a spinoff company of the University of Aberdeen.	Bad – The university may own some or all of the new technology IP.
7.1.3 It is not clear from the company's website exactly where the technology is patented.	Good – the technology is probably patented in the UK and Japan, as the company has building projects in these countries. Bad – the company may not have the rights to the technology in other countries with large shares of the construction market, such as the USA.

We should clarify the firm's IP position before contemplating any investment therein.

8. Risk Analysis

8.1 'Project-termination' and Scale-down Factors

Factor	Comments
8.1.1 Lack of market interest.	An amount of money should be agreed for initial marketing – if the project has not managed to generate a reasonable flow of income after this money has been spent it should be terminated.
8.1.2 Failure to meet deadlines set.	Failing to keep to the schedules for profit and market share may indicate undetected problems in the project or company structure and should instigate a full project review.
8.1.3 Failure to achieve regulatory requirements	EBF has recently achieved a Technical Approval for construction from the BBA, which significantly mitigates this risk.

8.2 Further Comments

Small companies often to get market 'traction' (sufficient sales), because they do not spend enough time and money working on and executing a detailed market and sales plan. In this instance we do not have enough information to tell whether the company has such a plan as they do not mention it on their web-site

9. Conclusion/Next Steps;

The Environmental Building Partnership seems like a good investment as many of the stages with most potential project failure factors have already been completed. The company has a reasonable and well-researched business plan and seems likely to succeed.

EBP has already done a considerable amount of market research and has identified a selection of market segments as suitable for initial market entry. They are supplying a product which has clearly defined benefits that are relative and affordable for these market sectors, and have already made progress towards methods of accessing these markets with demonstration projects and partnerships.

The company founders have experience of what is required in the development of new building technology and will be unlikely to make obvious mistakes. The team structure appears clear, with a project manager and other divided responsibilities, and the company has listed clear goals for future achievements.

EBP represents a wide range of expert knowledge, allowing them to judge where products are relevant to the modern market. They show that they are able to use this skill in innovative ways by offering a consultancy service as a way of accessing the market, however they are also able to recognise areas such as marketing technique where the team lacks knowledge and needs to employ outside help.

The company has employed an impressive range of business models, indicating that they recognise the potential of their technology and are keen to extract the greatest advantage from this. However, before investing money in the company I would like to see more information about:

- The extent of completed project testing.
- Their long-term market strategy and how exactly they intend to achieve their goals.
- How their intended market share figures were calculated.
- How easy it would be to deal with final product faults.
- Who would be responsible for final product faults.
- Any possible negative effects of final product faults.
- The full extent and ownership details of the IP.

Appendices

APPENDIX A – BIBLIOGRAPHY

THE ENERGYFLO CELL FOR USE IN TIMBER-FRAME ELEMENTS

BBA Approval document

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