



Implementation plan on compliance of the EED

04/06/2020

An investment plan?

Dear Bax-shop management,

As part of my studies at International Business and Management, it is required to complete my graduation internship in which writing a research was also part of the deliverables. In this research the interest went out to improving current owned buildings to become up to standard with the directives made by the EU and given to member state governments. The findings from the research conducted, have led to coming up with this implementation plan.

Although why is this investment so important?

EED Compliance – The research

As found in the research, Bax-shop has to comply with regulations and directives the government has given. In order to do so, the property of Bax-shop has to be adapted and improved to acquire a specific energy label before 2023. Currently one building has already an “A” label which is sufficient enough to pass the minimal requirement in 2030 and is therefore not included in the implementation plan. However, the other building has an “E” label which is far under sufficient to pass the minimum standard even for 2023.

In the research, two of the most important findings that show gaps between the current situation at Bax-shop and an ideal situation for compliance of the EED are as follows:

1. The best investment for Bax-shop to do including ROI
2. The best time for installation and adaption of buildings

In the upcoming slides of this implementation plan it is shown how Bax-shop will be able to fill in those information gaps in the upcoming future and reach their goal.

What is going to happen?

As this implementation plan is key for compliance of the EED, this plan will help create a great overview of the best strategy to execute and how this execution can be done as efficient as possible. Also this plan will show you how these investments are both beneficial for the environment as well as for the companies' liquidity.

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Requirement for compliance

To understand what lead to the decision of what improvements would be fulfilling Bax-shop's needs the most and in the best way possible, some of the most important information that owes an explanation are as follows:

1. Bax-shop's total expected costs per solution and justification
2. Bax-shop's ability to fund the investments
3. Bax-shop's investments at what return rate
4. Bax-shop's ability to make time for the improvements in a certain timeslot

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Cost Justification

During the research it came to show that all possible improvements of energy efficiency and energy savings were divided in three categories, heating solutions, electrical solutions and insulations solutions. Within these three categories a checklist was made in which all possible options were taken into account. In the end it came down to an compiled list of improvements that were proven to be most effective.

For these improvements some specialists were asked if they would be able to give a rough estimate of the costs per unit on each of these measures. In that way the costs were calculated to come to a total of €22.726,- at the minimum necessary. The calculations per improvement are listed at the end.

How do we know these costs are representable? To be sure to not deviate too much from the real costs later on, the costs per unit were each compared with multiple companies and the average number was used as price per unit.

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Investment funding

Bax-shop's ability to fund the investments

For Bax-shop the ability to fund an investment as big as calculated earlier should not be a problem on its own. The main item thing to do is to do it as smart as possible.

How can we do that?

Well, the property of Bax-shop is only situated in the Netherlands, therefore dutch tax and law is applicable. In the netherlands it is allowed to reseruate a part of the profit for high expenses in a later year. If the company reservates a small part of this profit each month for a small amount for the duration of the upcoming 1,5 years, there will be almost no disturbance in cash-flow and liquidity. This means that without big sacrifices building improvements can be made.

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Time management

Bax-shop's ability to make time for the improvements in a certain timeslot

During the course of an operational year for Bax-shop, the company experiences some very busy periods. November and December are the busiest two months by far in terms of sales volumes. The biggest online sales events occur during this period. Black Friday, Saint Nicholas and the Christmas shopping period all combined to make these the peak months for online retail. It has been made clear that in the build-up towards this period it starts getting busier as well.

When to proceed with the improvements then?

The best strategy to improvement is to plan and achieve this in the late first quarter and early second quarter of the year. This way there is no disturbance in January when the company is still processing the busiest period of the year and financial closure of it. And also, you are neatly situated before the start of the build-up towards the summer holidays and annual holiday pay bonus where a lot of people use their money to purchase online.

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ROI

With the measures that will be undertaken and are displayed in the last part it boils down to minimally investing €22.726,- under the condition that the demolition plans are continued for the “Verrijn Stuartweg 18”, hereafter called “VS18”. If these plans are discarded the normal investments to be made round up to be around €50.409,-. As shown in the last part of this document the calculations for the return on investments are given.

So how long will it take for the measures to save the company money?

As the extended table at the end shows more details, here is a compact one:

Investing €22.726,- to obtain label “C”	Return in ± 3 years and 1 month
Investing €50.409,- to instantly obtain label “A”	Return in ± 5 years and 6 months
Investing in label “C” at 2023 and later label “A” in 2030	Return in “C” in ± 3 years and 1 month and label “A” on it’s own in ± 3 years and 0 months after implementation

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Outcomes

Finally, here are two recommended, very short and clear, package choices how you should implement the improvements based on the research and previous explanations. Minimal is in case of demolition of the “VS18” **after** the year 2030, Normal is without demolition. If “VS18” is going to be demolished **before** 2030, no investments at all have to be made:

Minimum:

Improve “VS18” with the following before 2030:

• facade insulation inside	±€8.251,86
• Suction ventilation timer office	±€200,00
• TLD-lamps replaced by LED-tubes	±€1.275,30
• Glow lamps replaced by LED-lamps	±€12,30
• TL5-lamps replaced by LED-tubes	±€7.982,70
• Movement sensors lights warehouse	±€5.003,83

Execute these building improvements in February, March or April of the year 2022 so that at the end of year 2020 and 2021 an equalization reserve can be made in advance. This way compliance is met for the requirements in 2023. **However**, if the plans are solid and set for demolitions before 2023, no investments have to be made at all. This counts for both the “VS18” and “O2-4”. Since “O2-4” already has an “A”-label.

Total costs calculated: €22.726,-

Normal:

Improve “VS18” with the following before 2030:

• facade insulation inside	±€8.251,86
• Suction ventilation timer office	±€200,00
• TLD-lamps replaced by LED-tubes	±€1.275,30
• Glow lamps replaced by LED-lamps	±€12,30
• TL5-lamps replaced by LED-tubes	±€7.982,70
• Movement sensors lights warehouse	±€5.003,83

Execute these building improvements in February, March or April of the year 2022 so that at the end of year 2020 and 2021 an equalization reserve can be made in advance. This way compliance is met for the requirements in 2023. Thereafter, to comply in 2030

• Replacement of single glass with HR++ glass	±€27.682,80
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The method of instalment will look the same when the circumstances continue to be the same aswell, implementation in February, March or April of 2029 and build-up of equalization reserve 2 years in advance.

Total costs calculated: €50.409,-



Thank you

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Calculations

Gevelisolatie binnenzijde			€	8.251,86	
Gevel - magazijn	78,22 m²	83,00 €/m²	€	6.492,26	100 mm isolatie,
Tussenmuur	21,20 m²	83,00 €/m²	€	1.759,60	behangklaar
Schakelklok afzuigventilatie kantoor			€	200,00	
Weekschakeling ventilatie	1 stuks	200,00 €/stuk	€	200,00	Ventilatie alleen tijdens kantooruren
TLD-lampen vervangen door LED-tubes		2,00 €/stuk	€	1.275,30	
<i>TLD-lampen vervangen door LED-tubes</i>			€	1.161,30	
TLD 4x18W conv, inbouw	31 stuks	15,20 €/stuk	€	471,20	LED-tubes 4x8W
TLD 3x18W HF, inbouw	25 stuks	27,30 €/stuk	€	682,50	LED-tubes 3x9W
TLD 2x18W conv, inbouw	1 stuks	7,60 €/stuk	€	7,60	LED-tubes 2x8W
Gloeilampen vervangen door LED-lampen		2,00 €/stuk	€	12,30	
<i>Gloeilampen vervangen door LED-lampen</i>			€	8,30	
Gloeilamp 40W	2 stuks	4,15 €/stuk	€	8,30	LED gloeilamp 4W
TL5-lampen vervangen door LED-tubes		2,00 €/stuk	€	7.982,70	
<i>TL5-lampen vervangen door LED-tubes</i>			€	7.582,70	
TL5 2x35W HF, trog	107 stuks	38,20 €/stuk	€	4.087,40	LED-tubes 2x20W
TL5 2x35W HF, trog (uit)	90 stuks	38,20 €/stuk	€	3.438,00	LED-tubes 2x20W
TL5 1x35W HF, montagebalk	3 stuks	19,10 €/stuk	€	57,30	LED-tubes 1x20W
Aanwezigheidsdetectie verlichting magazijn		0,05 €/m²	€	5.003,83	
<i>Aanwezigheidsdetectie verlichting magazijn</i>			€	4.811,38	
Magazijn	3.849,1 m²	1,25 €/m²	€	4.811,38	Handschakelaars vervangen door

Calculations ROI

Improvement Measures	Investment [€]	Gas [€/jaar]	Electr. [€/jaar]	Total Savings [€/jaar]	Est. ROI [jaar]
Gevelisolatie binnenzijde	8.252,00	811,00	-	811,00	10,18
<i>**Extra gevelisolatie binnenzijde</i>	<i>17.438,00</i>	<i>211,00</i>	<i>-</i>	<i>211,00</i>	<i>82,64</i>
<i>**Isolatie hellend dak</i>	<i>40.108,00</i>	<i>32,00</i>	<i>-</i>	<i>32,00</i>	<i>1.253,38</i>
<i>**Gevel- en dakisolatie</i>	<i>70.628,00</i>	<i>1.256,00</i>	<i>-</i>	<i>1.256,00</i>	<i>56,23</i>
Enkel glas vervangen door HR++ glas	27.683,00	1.711,00	-	1.711,00	16,18
Schakelklok afzuigventilatie kantoor	200,00	1.485,00	-	1.485,00	0,13
<i>**Aanpassen verlichting</i>	<i>37.209,00</i>	<i>-</i>	<i>4.598,00</i>	<i>4.598,00</i>	<i>8,09</i>
<i>**TLD-armatuur vervangen door LED-armatuur</i>	<i>4.205,00</i>	<i>-</i>	<i>314,00</i>	<i>314,00</i>	<i>13,39</i>
TLD-lampen vervangen door LED-tubes	1.275,00	-	325,00	325,00	3,92
<i>**PL lampen vervangen door LED (retrofit)</i>	<i>79,00</i>	<i>-</i>	<i>6,00</i>	<i>6,00</i>	<i>13,17</i>
<i>**Halogeenspots vervangen door LED-spots</i>	<i>576,00</i>	<i>-</i>	<i>100,00</i>	<i>100,00</i>	<i>5,76</i>
Gloeilampen vervangen door LED-lampen	12,00	-	5,00	5,00	2,40
<i>**Aanwezigheidsdetectie verlichting</i>	<i>4.189,00</i>	<i>-</i>	<i>137,00</i>	<i>137,00</i>	<i>30,58</i>
TL5-lampen vervangen door LED-tubes	7.983,00	-	3.403,00	3.403,00	2,35
Aanwezigheidsdetectie verlichting magazijn	5.004,00	-	1.382,00	1.382,00	3,62
Improvement Measures C-label	22.726,00	2.296,00	5.115,00	7.411,00	3,07
Improvement Measures A-label	50.409,00	4.007,00	5.115,00	9.122,00	5,53

* Data in savings is measured by looking up the "normal" annual current usage and comparing the new situation in usage which returns the improvement in efficiency

** This improvement is optional and not recommended, therefore it is not added to the final calculations