

The Case of Insulation Facade

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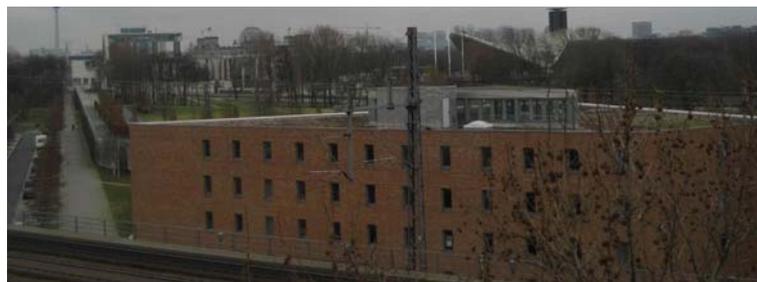
Task

The following pages present how one calculates, and in which cases you will receive subsidization, and in which cases you can raise the rent. Here you will receive useful recommendations, approaches, and conclusions.

The practical example

The property Lüneburger Straße 13 was built in 1961. The average apartment size is 47 square meters. The house has five floors and contains a building in front of the Flemingstraße, and a backyard facing the Lüneburger Straße. The property is not actually in a good condition, and we have to refurbish it. Today, only 10 flats have a balcony; further, there is a good opportunity to build penthouses on the top of the building with a wonderful view over the government district in the Tiergarten.

Year of construction:	1961
Floors:	5
Residential units:	25
Leasable area	1200 m ²



View over the government district



Facade Lüneburger Straße

Some opinions

There is an opinion concerning when you should insulate a facade. For this kind of building and construction year, it is possible to save almost 50 percent of the energy costs.¹ Another rule of thumb says, when the wall thickness is less than 36 centimeter, it makes sense to insulate the facade.² The walls have a thickness of 25 centimeters, which explains the non economical energy consumption.

The heating costs have become more and more expensive and load the family budget extremely. The German tenants want to change something, they know that a change of mind is necessary, and many tenants are ready to take part in the reorganization. In a survey, 66 percent of the respondents said that they see no problem when their rent will be increased by up to 10 percent, if they can save on heating costs. “Tenants want energetic reconstructed flats, and they are ready to take part of it“, said Dr. Wolfgang Setzler³



Windows Lüneburger Straße

Structural measures

We are planning the following structural measures in Lüneburger Straße:

Facade Insulation (Investment 65 €/sqm)

Costs: 78.000 €

New double glazed windows (50 €/sqm)

Cost: 60.000 €

Insulation of ceiling (20 €/sqm)

Cost: 24.000 €

Total Costs: 162.000

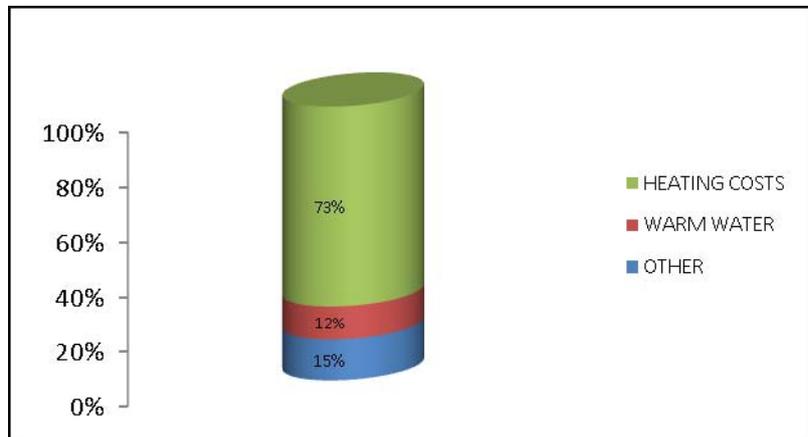
¹ RTW Report, Defects and damages – Lüneburger Straße ,2007-09-13, p 1

² Interview, Probitas, December 2008

³ <http://www.klima-wandel.com/2008/11/20/waermedaemmung-wird-unterschaetzt/>, 2008-11-20

Effects of facade insulation

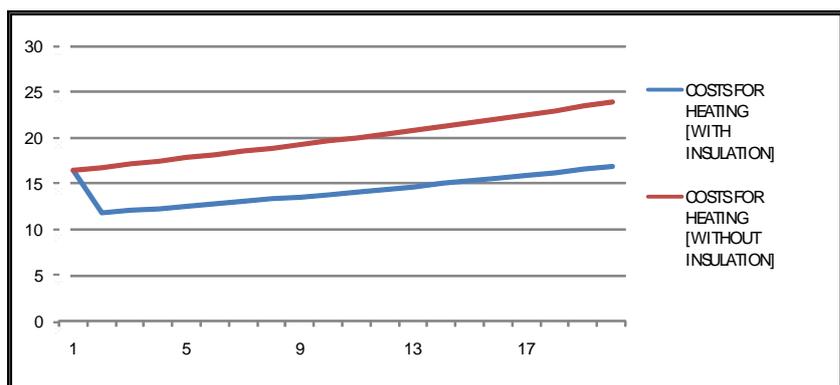
Many studies attest that the remarkable part of the additional expense is the cost for energy.⁴ Here we have a good chance to significantly reduce the costs for our tenants, immediately; later it will be possible to increase the net rental income. We will get back to this in a following chapter.



Allocation of energy costs

Reduction of heating costs

Currently, in the property Lüneburger Straße, the total cost for heating is approx. 16.000 € per year. As a result of the structural measures it should be possible to reduce the heating costs by 30 percent⁵. In this model, we are calculating with an inflation rate of 2 percent per year. In the next diagram you see the different development of the heating costs, with insulation and without insulation.



Development of the heating costs

⁴ <http://www.stmi.bayern.de>, "Modernisieren und sparen, 2008-12-23

⁵ RTW Report, Defects and damages – Lüneburger Straße ,2007-09-13, p 3

Reduction of periodic maintenance

We believe in the method of investing in the first year, instead of adding a piece every year. It is much better to perform the measures completely in one go. An example is the problem with the non-sound-insulated windows. Currently, before a new lease contract will be signed, all windows have to be changed before it is possible to charge the actual market rent. If we exchange all the windows during restructuring measures, there is the opportunity of using synergy effects.

Increase of net rental income

Due to the reduction of the heating costs (-30 percent) it is possible to increase our net rental income. The existing lease contracts are willing to pay 8.51 €/sqm per month for an apartment in the property, Lüneburger Straße. After the reduction of the heating costs, a new tenant is still willing to pay the 8.51 €/sqm per month. The difference is the substantial increase of the net rental income.

	OLD CONTRACTS [€/sqm/month]	NEW LEASE AGREEMENTS [€/sqm/month]	Δ
GROSS RENTAL INCOME	8,51	8,51	
COSTS FOR HEATING	1,14	0,80	-30,0%
OTHER OPERATING COSTS	1,57	1,57	
NET RENTAL INCOME	5,80	6,14	5,54%

Comment: German tenants pay their rent as a gross rent (including costs for heating and other operating costs). Therefore the net rental income is the revenue for the owner of the property.

Easier letting

It is much easier to let an apartment with a high energy-standard and an attractive looking façade, and windows with sound insulation. That is the way to reach the market rent much easier.

Pass on “11 percent” of the modernization costs

The landlord can pass on 11% of the costs for the modernization to the tenants. The increase in the rent is possible if the living conditions for the tenants have improved. The landlord can only pass on the costs for the modernization, not any other costs such as:

- ✓ Credit costs
- ✓ Development costs

The tenant has to pay 1/12th of the 11% each month additional to their monthly rent, after the modernization is complete.”⁶

⁶ Report Timo Attenhauser, Pass on “11 per cent” of the modernization costs

Financing

Some general information about KfW

KfW is a German government-owned development bank, based in Frankfurt. Its name originally comes from “Kreditanstalt für Wiederaufbau”, meaning Reconstruction Credit Institute, and it was formed after World War II as part of the Marshall Plan.

Under the brand name of KfW Förderbank you will find all information on the popular promotional program offered by KfW Bankengruppe in the areas of:

- housing construction and modernization, energy conservation
- environmental and climate protection
- infrastructure
- education

CO2 Building Rehabilitation

The “CO2 Building Rehabilitation Program” is suitable for everyone who wants to substantially reduce the energy consumption of an old building and, thus, to make an active contribution to protecting the climate and to do so at extremely favorable conditions. Generous promotion is provided for extensive energy-saving investments.

All investors may opt for the loan variant.

Interest rate reduction: You receive a long-term loan with redemption-free grace years at a clearly reduced interest rate. The interest rate is fixed for the first 10 years.

Repayment bonus: In Category A you will receive an additional repayment bonus. If your old building meets the new building standards after the rehabilitation, 5% of the loan amount must not be repaid. If you reach a level that is more than 30% below the new building standard according to German regulation for energy saving in buildings and building systems (EnEV), the bonus increases to 12.5%.

What may be financed?

Extensive CO2 reduction measures on residential buildings, including hostels, homes for the elderly and nursing homes, that were completed by 31st December 1983 (Category A) or 31st December 1994 (Category B).

Category A: New building standard or 30 percent better (Lüneburger Straße).

An expert will explain which measures you have to implement to reach the new building standard according to EnEV. When the measures are 30 percent better than the EnEV standard it is possible to get a loan amount deduction.

Category B: Package of measures.

You may choose a package of measures that best suits your needs, or a combination of measures.

The loan is granted on the condition that the measures are carried out by one or several professional firms. The related invoices must specify the labor costs, and have to be presented to your bank.

Conditions (last update 2008-11-20)

At the moment the loan conditions are between 1.40 and 1.70 percent nominal. It is a quite cheap alternative to finance the project. The duration of the loan is 20 years.

Investment calculation model

Approach for the calculation

What should we see in the calculation?

- ✓ Is it profitable to invest in the facade or is it better to keep the standard?
- ✓ Is the energy reduction enough to get a positive NPV (net present value)?
- ✓ Only the facade insulation should be analyzed!

What we ignored in the calculation?

- ✓ financing aspects
- ✓ fluctuation and new lease agreements
- ✓ “11 percent” – rule of modernization costs
- ✓ other investments in the property

Why we ignore some facts in the calculation?

- ✓ All ignored facts are positive affects, and we know that these aspects impact the calculation in a positive way.

Calculation

Residential Units]:	25
Leasable area [sqm]:	1 200
Gross Rental Income [T€]:	123
Net Rental Income [T€]:	84
Market rent [€/sqm]:	7,50
Cost fo heating [€/sqm]:	1,14
Other cost (BK) [€/sqm]:	1,57
Inflation:	2,00%
Discount factor:	6,25%

Key facts – Lüneburger Straße

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
20 YRS CASH FLOW - WITH INSULATION																					
YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
GROSS RENTAL INCOME (with operating costs & costs for heating)	8,51	123	127	130	133	135	138	141	144	146	149	152	155	158	162	165	168	172	175	178	
COSTS FOR HEATING [WITH INSULATION]	1,14	16	12	12	13	13	13	13	14	14	14	14	15	15	15	16	16	16	17	17	
OTHER OPERATING COSTS	1,57	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
NET RENTAL INCOME, Residential:	5,80	83	90	92	95	97	99	102	104	107	110	112	115	118	120	123	126	129	132	135	
Running Maintenance:	0,83	12	12	12	13	13	13	13	14	14	14	15	15	15	16	16	16	17	17	17	
Periodic Maintenance:	11,25	162	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	
Refurbishment Residential:	1,39	20	19	19	18	17	16	16	15	15	15	15	15	13	12	12	12	12	12	12	
Management [extern]	0,48	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Management [intern]	0,25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
NOL, Residential:	-121	48	51	54	57	60	62	65	68	70	72	74	77	81	85	88	90	93	96	98	
20 YRS CASH FLOW - WITHOUT INSULATION																					
YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
GROSS RENTAL INCOME (with operating costs & costs for heating)	8,51	123	125	127	130	133	135	138	141	144	146	149	152	155	158	162	165	168	172	175	
COSTS FOR HEATING [WITHOUT INSULATION]	1,14	16	17	17	18	18	18	18	19	19	20	20	20	21	21	22	22	23	23	24	
OTHER OPERATING COSTS	1,57	23	23	24	24	24	25	25	26	26	27	28	28	29	29	30	30	31	32	33	
NET RENTAL INCOME, Residential:	5,80	83	85	87	89	90	92	94	96	98	100	102	104	106	108	110	112	115	117	119	
Running Maintenance:	0,83	12	12	12	13	13	13	13	14	14	14	15	15	15	15	16	16	16	17	17	
Periodic Maintenance:	0,00	0	10	10	5	5	5	5	5	10	5	5	5	5	5	5	5	10	5	5	
Refurbishment Residential:	1,39	20	19	19	18	17	16	16	15	15	15	15	15	13	12	12	12	12	12	12	
Management [extern]	0,48	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Management [intern]	0,25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
NOL, Residential:	41	33	35	42	45	46	48	50	52	48	54	56	57	61	64	65	62	69	70	72	
Δ Net Rental Income [in T€]:	-162	15	16	11	12	13	14	15	-9	22	17	18	19	20	21	22	28	24	25	26	
Discounted Cash Flow [in T €]:	6,25%	-162	13	9	9	9	9	9	-5	12	9	9	9	9	9	8	10	8	8	8	
NPV [in T €]:																					3

Calculation with a positive NPV

Conclusion

The calculation shows that energetic renovation is a must. The Akelius strategy says that we want to develop our properties, so that they are still good in 20 or 30 years time. That is why the energetic investment in the facade and windows should be done, and it is important for value retention and appreciation. The calculation shows that we get a positive NPV in the 20-year calculation. The model examines only the reduction of the heating costs, and that fact is enough to calculate the investment. However, as we know, there are still some other positive aspects of an energetic refurbishment. The most important point is the low priced loan (KfW), the positive letting aspects and the pass on “11 percent” of the modernization costs. In summary we must insulate the facade and bring the property to a high energetic standard in combination with the KfW loan.