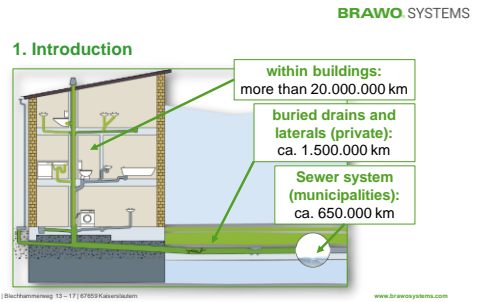


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Agenda

1. Introduction

2. Renovation of laterals, sewer and drain pipes

- 2.1 Laterals, sewer and drain pipes in the ground
- 2.2 Sewer and drain pipes within buildings
- 2.3 Case study: Hotel Pullmann, Paris

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1. Introduction

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Laterals (from the sewer system to the house)

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1. Introduction

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Sewer pipes within the buildings

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1. Introduction

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Sewer pipes below the buildings



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1. Introduction

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effort / costs?

dust / disturbance?

quality residence?

alternatives?

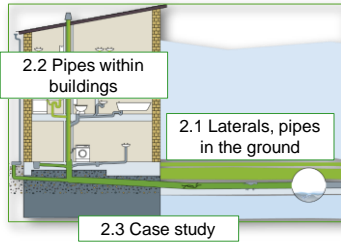
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2. Rehab of laterals, sewer a. drain pipes



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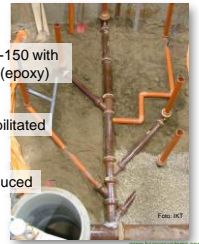
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2.1 BRAWOLINER® (pipes in the ground)

- Renovation with bends up to 90°, almost all materials
- Changing diameters e.g. DN 100-150 with the 3D Liner, force-fit connection (epoxy)
- Used from DN 50 up to DN 400
- Almost all damages can be rehabilitated
- Only one accesspoint required
- A new pipe in the old pipe is produced
- Durability more than 50 years!



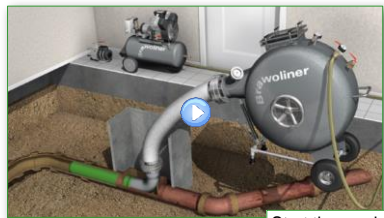
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2.1 Laterals and pipes in the ground



Start the movie!

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2.1 BRAWOLINER® (pipes in the ground)



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2.2 Pipes within buildings

The rehabilitation of sewer pipes inside buildings are subject to special technical requirements and stringent structurally engineered rules ...



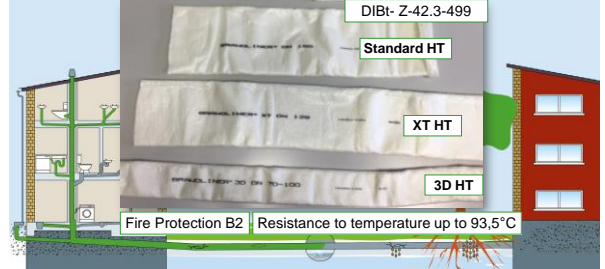
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2.2 BRAWOLINER® HT (Inhouse)



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2.2 BRAWOLINER® HT (Inhouse)



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2.3 Case study: Hotel Pullmann, Paris



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2.3 Case study: Hotel Pullmann, Paris

Situation before start of the rehabilitation project:

The hotel building and the pipework are from the 70'ies

Wastewater pipes are made of cast iron

Building had to undergo some major renovations (4 years)

Originally all waste water pipes should be replaced

During renovation the replacement of pipes was cancelled due to high cost and time

After flooding of some floors due to damaged pipes the work was re-assessed



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2.3 Case study: Hotel Pullmann, Paris



Project facts:

44 vertical cast iron DN 125 pipes

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2.3 Case study: Hotel Pullmann, Paris

Situation before start of the rehabilitation project:

Solution:

Due to TIME and COST the relining method of the vertical pipes was chosen

Challenge:

Very short time frame of only 6 weeks to finish the total job:

cleaning – relining – re-open connections - connecting

2.3 Case study: Hotel Pullmann, Paris



Project facts:

lengths of 70m and 64m each

25 floor levels (from floor 33 down to 8th floor)

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2.3 Case study: Hotel Pullmann, Paris



Project facts:
Tight supply demands
-just in time delivery on job site-

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2.3 Case study: Hotel Pullmann, Paris



Project facts:
> 5 tons of resin

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2.3 Case study: Hotel Pullmann, Paris



Project facts:
> 3000m liner

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2.3 Case study: Hotel Pullmann, Paris



Project facts:
Steam curing of 2-3 verticals simultaneously
4 hours curing time

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2.3 Case study: Hotel Pullmann, Paris



Execution:

- 4 people to install the liners
- 6 days per week

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2.3 Case study: Hotel Pullmann, Paris



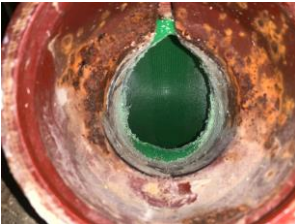
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2.3 Case study: Hotel Pullmann, Paris



Execution:

- 10 people to re-open the 2200 connections

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Thank you for your interest!
Do you still have any questions?

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