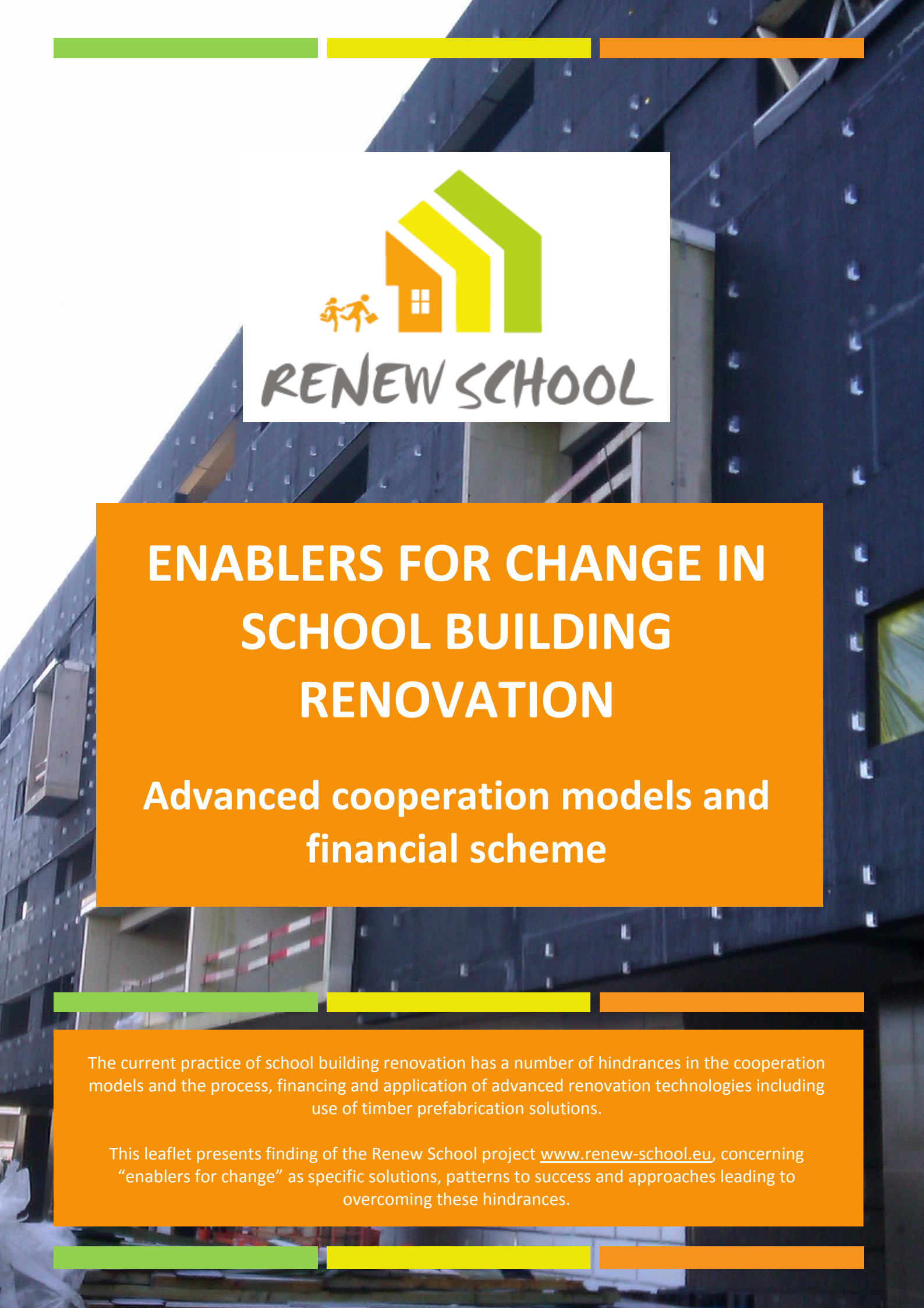

RENEW SCHOOL

ENABLERS FOR CHANGE IN SCHOOL BUILDING RENOVATION

Advanced cooperation models and financial scheme

The current practice of school building renovation has a number of hindrances in the cooperation models and the process, financing and application of advanced renovation technologies including use of timber prefabrication solutions.

This leaflet presents finding of the Renew School project www.renew-school.eu, concerning “enablers for change” as specific solutions, patterns to success and approaches leading to overcoming these hindrances.

COOPERATION MODELS & PROCESS

During the planning phase, improvement can be supported by sufficient application of Building Information Modelling (BIM), as shared knowledge resource for information.

The main idea is to have **all actors cooperating** from the very beginning of the project and having a reliable basis for decisions during the whole process. Also, thorough planning enables realization of achieving the prefabrication technology benefits.

Enablers:

- Strong BIM project manager/coordinator.
- Clear agreement on how risks are shared.
  It is necessary to clarify issues concerning the BIM model ownership and clash-detection.

Throughout the entire building process clear, target oriented and transparent **communication** amongst planners, engineers and contractors is of crucial importance.

Solutions:

- Prioritise physical meetings instead of only virtual collaboration and problem shifting via e-mailing.
- Create an atmosphere of trust instead of blame games.
- Take end users seriously in the process as early as possible so their views are heard and integrated. In doing so, they act as an internal driving force resulting in high degree of user acceptance.

Deep renovation is time consuming and can take up to several years for the decision making, ensuring the financing sources, the procurement, design, planning, construction and handover. **Staff exchange in the project team** within this time period may be unavoidable, hence it inducing information/knowledge loss.

Solutions:

- Establish information and documentation management supporting quality assurance that ensures continuous information flow throughout the entire project phases.

How to motivate actors such as architects and engineers personally?

Their profit depends most likely on how successful they can reduce own internal effort and own costs. Most likely there is no tangible advantage if they are able to optimize the solution and increase the quality.

Enablers:

- Ensure incentives (financial and others) for the successful work throughout the entire project.
- Share benefits and risks amongst planners and contractors, so that they have an interest to achieve the best possible result.

BEST PRACTICE EXAMPLE OF A COOPERATION MODEL

The German "Bauteam"-cooperative planning approach for high quality and low cost construction. *(Note: Bauteam translation in English is Building team.)*

- ✓ Intensive cooperation and coordination
- ✓ Open communication ensures efficiency and performance
- ✓ Create room for participation of the planners, engineers, contractors
- ✓ The solutions are found through consensus
- ✓ Knowledge is shared across the team

BAUTEAM
=
planning and realisation as one team

Intensive communication and cooperation among the architects, engineers and construction companies in early stages of the building process prove to be key elements of success.

Planning and execution are awarded in a package through a combined tender. The tender is awarded to the team with the best ideas and the best cost-benefit ratio from the viewpoint of the client.

Many models of the Bauteam are used in Germany, all interdisciplinary. For example, a team can consists of architects, special engineers and the individual trades of local craftsman.

A hindrance of the Bauteam approach is the high effort, without the team knowing if they would win the assignment.

Advantages for the developer in using the Bauteam model are: the costs can be guaranteed at a relatively early stage (in the pre-draft), and one person is responsible - the architect, who represents the team in the tender.

The use of Bauteam model for tenders in the public field, such as school building renovation, may be challenging and influenced by local conditions. This, for example is, when demanding separate tenders for each trade. In such circumstances it is advisable to argue for high potential to strengthen the local economy and use prefabricated construction modules as suitable opportunity.

- How can the prefabrication process be strengthened? **Tender requirements for "CO2-reduction"and "resource-sustainability"** contribute to use prefabrication and/or timber solutions.
- **Professional consultant (timber construction expert) and a motivated building owner** contribute to acceptance of using timber prefabrication.

FINANCING

School renovations aiming at high energy performance and use of timber prefabrication typically require high upfront investment.

Making high initial investments to get better results on the long term (whole life cycle of the building) seems logical, yet, school budgets are typically spread over lots of schools as small investments focusing on 'low hanging fruit' measures.

- **Consider the prefab renovation modules as 'stock products'.** They can be generally described and tendered through a **framework contract for multiple projects** to be executed during the coming next few years. This **global tendering** already happens for generic, repetitive products (such as white tiles in school toilets, etc.)
- **Use prefabrication technology as financially viable solution,** thus enabling the short on-site renovation execution time. Renovating during the summer holiday is crucial factor for operating schools, avoiding on long closures and costs of temporary housing the school users.
- **Create volume** by aggregating buildings in one tender, or by global tendering.

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