CREE BUILDINGS

Let us turn your building into a sustainable project.

How to create high-quality commercial, institutional, and residential buildings quickly, reliably, and with cost certainty.

5 reasons why the following Q&A is valuable for you:

1. You are a developer and want to make your contribution to a more sustainable built environment.
2. You know that the requirements for buildings are increasing due to environmental legislation, but you do not know yet how to meet them.
3. You know that timber can be the “new” building material to make a difference, but you do not want to take unnecessary risks when it comes to moisture, fire safety, sound protection, and structural issues.
4. You need to know that your project economics and scheduling are not flawed 2 years later when it would be too late to return to traditional construction methods.
5. You are just curious if building more sustainably with wood is a good business case.

This folder provides you with an overview of the opportunities, the challenges and the answers to the most relevant questions when constructing large-scale sustainable buildings with CREE.

“Timber buildings are becoming more and more recognized as the construction industry’s contribution to fight climate change. Nevertheless, people’s safety must remain our priority. At the IBS Institute in Linz, we clearly see CREE as being at the forefront of optimal safety timber construction, due to the 120-minute fire-rated building system and simple standard connection detailing.”

GERHARD LEIBETSEDER
Fire Safety Expert at IBS - Technisches Büro GmbH, Austria

“At ASPECT we believe in using the right material for the right application — not in one size fits all. And we are giving timber the place it deserves. As the only truly renewable building material it is the building material of the future. But we need to be smart and combine it with steel and concrete where suitable. The prefabricated CREE system combines materials in a smart way, resulting in a clean and simple solution that has many potential applications.”

BERNHARD GAFNER
Principal at Aspect Structural Engineers, Canada | Switzerland

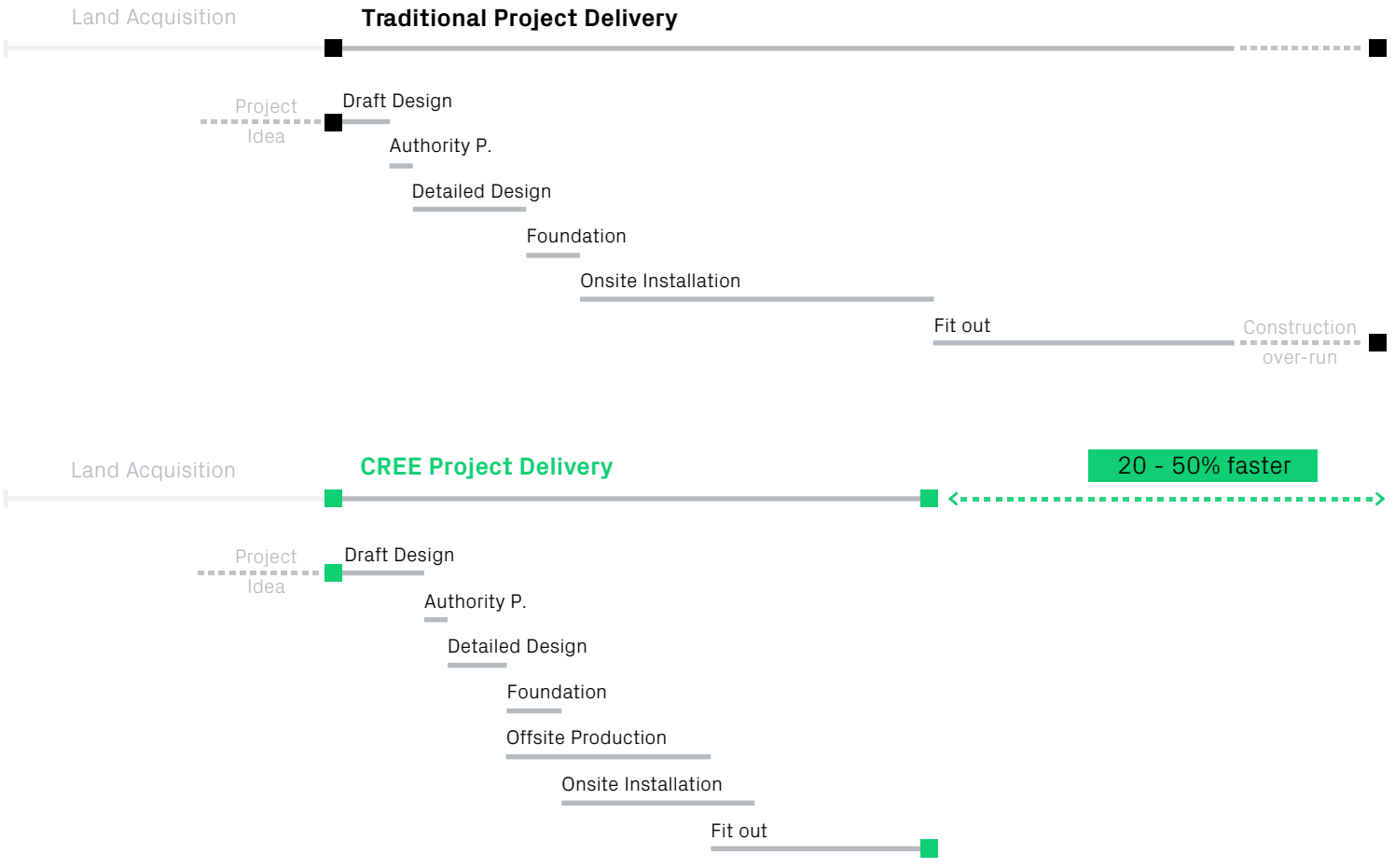

MBM

Timeline
for Project Development Simplified

CREE's building solution enables you to meet the ever-more-ambitious construction standards of today and tomorrow. Explore the features of our proven, repeatable, and constantly evolving construction system, and discover the applications most relevant for you.

Our building solution provides an efficient project delivery process, thanks to offsite industrial prefabrication of building components and their highspeed installation onsite. CREE is a committed yet neutral ally throughout, ensuring all key stakeholders gain exactly the head start they need and are focused on delivering an exceptionally valuable product.

- Planning and Design: More upfront design efforts for early project phases, but the entire design phase will shorten as designs are repeated
- Foundation: Offsite production begins in parallel with groundworks and foundations
- Offsite Production: Enhanced productivity, work safety, cost certainty and rapid onsite installation
- Onsite Installation: Fast onsite assembly overlaps with offsite production
- Fit out: Work on assembled weather tight floors in parallel with onsite installation



Finance / Economics

IS THE TIME TO MARKET FASTER?

Planning and building with the systematized CREE construction method saves you 20-50% time in project delivery. This lowers your cost of financing and enables earlier rental income.

IN WHICH PHASES ARE THE GREATEST TIME SAVINGS ACHIEVED?

Faster project delivery is mainly achieved in three project phases (see the timeline-graphic):

- Execution planning, shop drawings
- Installation of core & shell with prefabricated elements
- Earlier fit-out due to immediate weather tightness

CAN YOU ACHIEVE A FASTER RETURN ON INVESTMENT?

Of course, mainly because of the following facts:

- Faster project delivery
- Increased rental or sales value due to the high quality of the building
- Lower cost of operations and maintenance

WHY ARE THE OPERATIONAL COSTS OF A CREE BUILDING LOWER?

Reasons are:

- Integrated heating and cooling operate at low temperatures, resulting in lower energy consumption
- High-performance building shell facilitated by panelized timber-frame wall solutions
- Fewer load-bearing members within the floor space, leading to greater flexibility for different use cases
- Easy access for visual quality inspections due to no additional cladding of the structure

IS A CREE BUILDING MORE EXPENSIVE?

If the project follows the CREE design and construction principles, the cost of a turnkey project is like that of a conventional building.

DOES THE INSURANCE COST MORE?

No, according to our experience with CREE projects, the insurance costs are the same, or even lower (in case of higher fire safety standards to be met), compared to conventional buildings.

Sustainability

IS A CREE BUILDING ESG AND EU-TAXONOMY COMPLIANT?

CREE buildings are designed to meet ESG criteria, instilling investor confidence and trust. They focus on all three pillars of ESG comprehensively, fully embedding the ESG into the basis of the building design.

The CREE headquarters in Austria, LCT ONE, is a shining example of alignment with EU Taxonomy. Even built back in 2012, the LCT ONE meets and exceeds all given Taxonomy criteria.

WHAT IS THE LIFE CYCLE ASSESSMENT (LCA) SCORE OF A CREE BUILDING?

The LCA score of each building depends on various design decisions, covering the entire life cycle of a building, as well as where the building is located.

The CREE System substantially reduces carbon emissions, and its high-quality structure and envelope with integrated building services decreases the costs related to maintenance, repairs, replacement, etc., lowering the overall life-cycle impact and cost.

IS A CREE BUILDING COMPLIANT WITH SUSTAINABILITY CERTIFICATIONS?

CREE targets many of the green building certification criteria with its basic principles and usually covers them beyond the environmental aspects. CREE's sustainability approach compliments a holistic point of view.

LifeCycle Tower ONE (LCT ONE):
DGNB Platinum
LEED Platinum
PHI Certified Passive House

Illwerke Zentrum Montafon (IZM):
DGNB Platinum

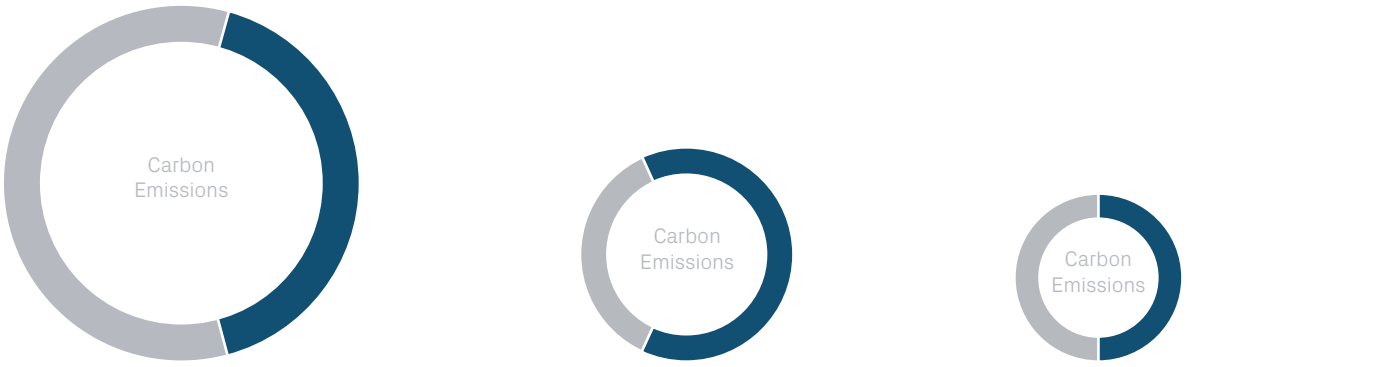
EDGE Suedkreuz Berlin (SXB):
DGNB Platinum (highest score ever at the time)
DGNB Diamond (Award for design and building culture quality)
WELL Core Gold

Path to
Carbon Neutral Buildings

DOES CREE MAKE MY BUILDING CLIMATE NEUTRAL?

Building operations contribute to a big portion of life cycle carbon emissions and they account for over a 50-year lifespan, whereas embodied carbon emissions have an immediate impact on the environment as the building is constructed. Therefore, if we are to tackle climate change, the need for reducing emissions from embodied carbon becomes even more critical and urgent. That is why, reducing “embodied” carbon emissions when building with CREE makes a big step towards carbon neutrality.

REDUCTION IN TOTAL CARBON EMISSIONS OVER 50-YEARS LIFESPAN



Conventional Concrete Buildings

In conventional concrete buildings, although carbon footprint of materials used is substantially high, the majority of the carbon emissions over the 50-year lifespan happen during the operational phase of the building.

Operational Carbon

Embodied Carbon

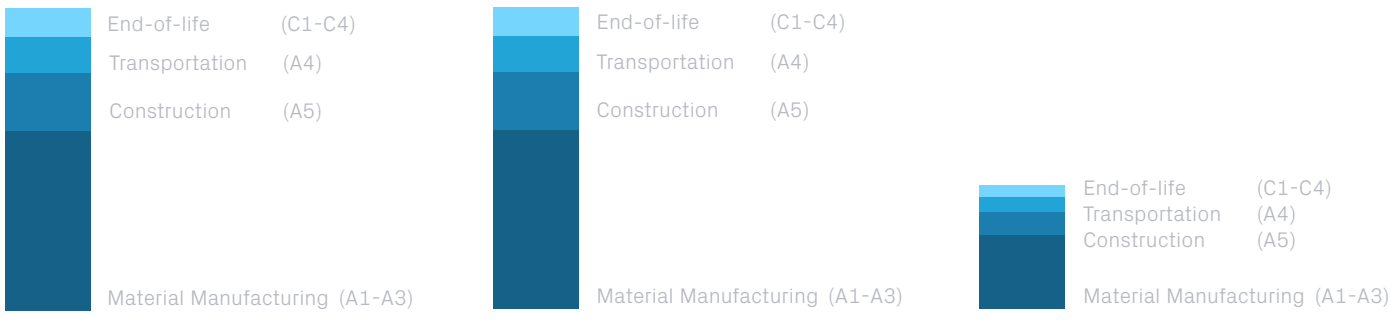
High-performance Buildings

High-performance buildings have a big focus on reducing the operational carbon emissions. In the case of nearly zero-energy buildings, the operational carbon emissions could even go down to zero. That means, embodied carbon emissions account for bigger portion of total carbon emissions.

CREE Buildings

CREE Buildings are urged to be designed as high-performance buildings. On top of that, the modular, prefabricated timber-concrete composite CREE structure reduces the embodied carbon emissions by 50%.

BREAKDOWN OF EMBODIED CARBON EMISSIONS:
50% REDUCTION IN EMBODIED CARBON EMISSIONS WITH CREE BUILDINGS.



Conventional Concrete Buildings

High-performance Buildings

CREE Buildings

SCAN HERE

And watch the eye-catching timelapse video of the CREE System in action.

Time and Process

HOW DOES THE CREE PROCESS DIFFERENTIATE FROM THE CONVENTIONAL?

During the collaborative CREE process, all stakeholders work together at a very early stage in an integrated, BIM-supported planning process, and CREE forms the bridge between design and execution. This leads to significant efficiency gains in contrast to the conventional, linear process.

WHY DO YOU SAVE TIME IN THE PLANNING OF A CREE PROJECT?

How to build CREE follows repetitive logic. All regular details rely on proven concepts and are part of the digital twin of the building. Once the BIM model is set up properly for the building application, the main part of the execution design and shop drawings are done as well. The digital twin enables you to design the building as you construct it.

WHY DO YOU SAVE TIME IN THE EXECUTION OF A CREE BUILDING?

All elements for core and shell are prefabricated and installed in a simple plug-and-play process at a speed of up to 4,000 sq ft of fully enclosed and weathertight space per day. To take full benefit of earlier project delivery, CREE also strongly supports a prefabricated approach for the fit-out elements of the building (such as separation walls, sanitary units and MEP components, etc.).

DO YOU NEED TO PROTECT THE CREE COMPONENTS DURING THE CONSTRUCTION PERIOD?

Establishing a temporary weather protection concept during the installation process is recommended, and CREE can provide you with references. In general, the high-speed installation facilitated by CREE is the best measurement to avoid weather-induced damages. Depending on the size and circumstances of your project, temporary weather protection may be needed but can easily be considered already in the production and installation planning.

Technical

DOES CREE ACCOMMODATE FOR PROPER SOUND PROTECTION?

Every existing CREE building, which sum up to more than 2,152,700 sq ft of built floor space (commercial, institutional, or residential), has proven to fulfill the requirements regarding sound protection, no matter if airborne sound or impact sound, including both floor and wall elements.

DOES CREE FULFILL ALL REQUIREMENTS REGARDING FIRE PROTECTION?

CREE's structural components have been tested and fire-resistance certified for up to 120 minutes, which makes them an approved high-rise building system.

HOW ABOUT THE STRUCTURAL SAFETY OF THE CREE SYSTEM?

Per design, the structural components of the CREE building system can be designed according to local standards (e.g., EC, IBS, SIA). The system is able to fulfill all standard requirements regarding stability, deflections, vibration, progressive collapse, etc.

WHAT DO I NEED TO KNOW ABOUT MASS-TIMBER AND MOISTURE?

The untreated mass-timber superstructure of CREE buildings allows for rapid drying after exposure to moisture. The sorption activity of the wood supports the regulation of indoor humidity. Inherently rapid closure of the envelope and project-specific temporary weather protection measures prevent damage during construction. The concrete floor layer protects all wooden members from water damage throughout a CREE building's operational lifecycle.

Future

HOW LONG DOES A CREE BUILDING LAST?

Regarding durability and longevity, a CREE building is designed according to the same regulations (for example 50 years per EUROCODE) as any conventional building. Because of its flexibility in reuse and refurbishment, paired with the natural endurance of weather-protected wood, the lifetime of a CREE building will most likely be much longer, as many timber-based buildings from past centuries demonstrate.

WHAT TO DO WITH A CREE BUILDING AFTER ITS LIFETIME?

CREE buildings are designed according to cradle-to-cradle principles. You could even dismantle a CREE building and rebuild it at another place or use its components for a new building. Least desirable but still an asset, you could transform it into a source of renewable energy.

If you want to convert your next building project into a valuable green asset, involve CREE in your design and development team from the earliest stages. Let us jointly explore the boundaries and opportunities for a truly sustainable project using CREE‘s systematized approach.

CONTACT US.

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The CREE Headquarters is located in Dornbirn, Austria. Our global partner network currently extends from Europe to Asia and North America.

Let‘s shape the
future together.

creebuildings.com