JELOVICA

Lower carbon
Faster Build
Certified Quality

Prefab Meets Performance

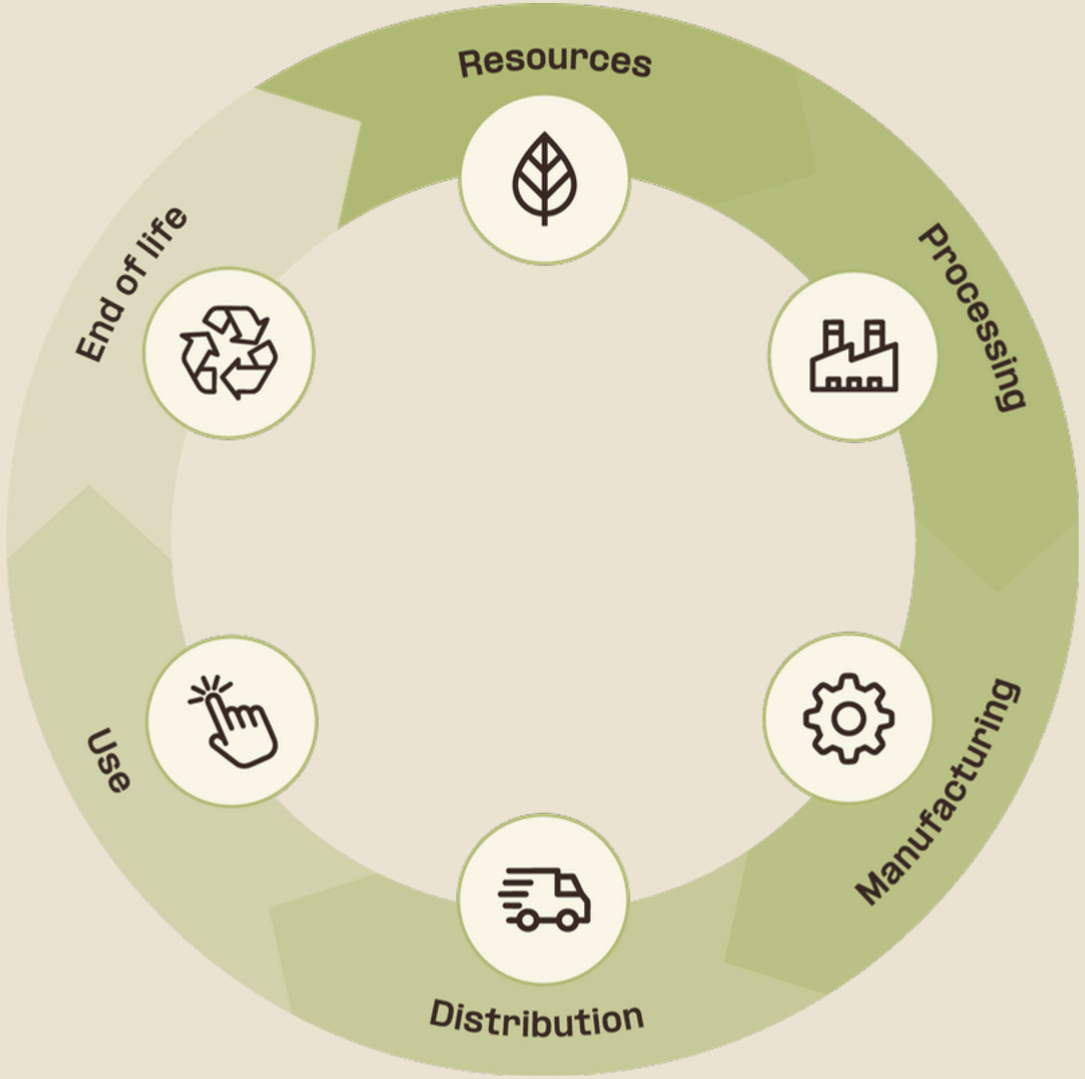
THE CHALLENGE

Carbon Pressure and Construction Slowdown

Across Europe, public procurement is increasingly requiring life–cycle assessments (LCA) and carbon transparency in construction projects — a trend driven by Green Public Procurement policies and strengthened by recent EU climate and ETS reforms.

These measures, combined with labour shortages and long project cycles, are pressuring developers to seek faster, lower–carbon construction systems.

> This regulatory shift creates space for proven low–carbon construction systems to lead the market.



EU–wide CO_2 & ESG Regulations 2020–2030

How European climate policy reshapes construction standards

2020 – 2022

EU Green Deal adopted (2019–2020)

EU Renovation Wave launched

Introduction of Level(s) (EU building sustainability framework)

First national LCA requirements in Nordic + BeNeLux countries

2024 – 2026

Green Public Procurement: LCAs required in several EU countries.

EPBD revision: near–zero–emission new buildings + expanded LCA requirements.

EU Taxonomy activated for construction financing (ESG alignment).

2027 – 2030

Mandatory LCAs in public tenders + expected carbon caps for new buildings.

EU Taxonomy fully integrated + stricter ESG disclosure under CSRD.

Digital building logbooks (CPR 2.0) + national carbon budgets across EU.

European Green Deal

Level(s)
European framework for sustainable buildings

EU ETS

13 CLIMATE ACTION

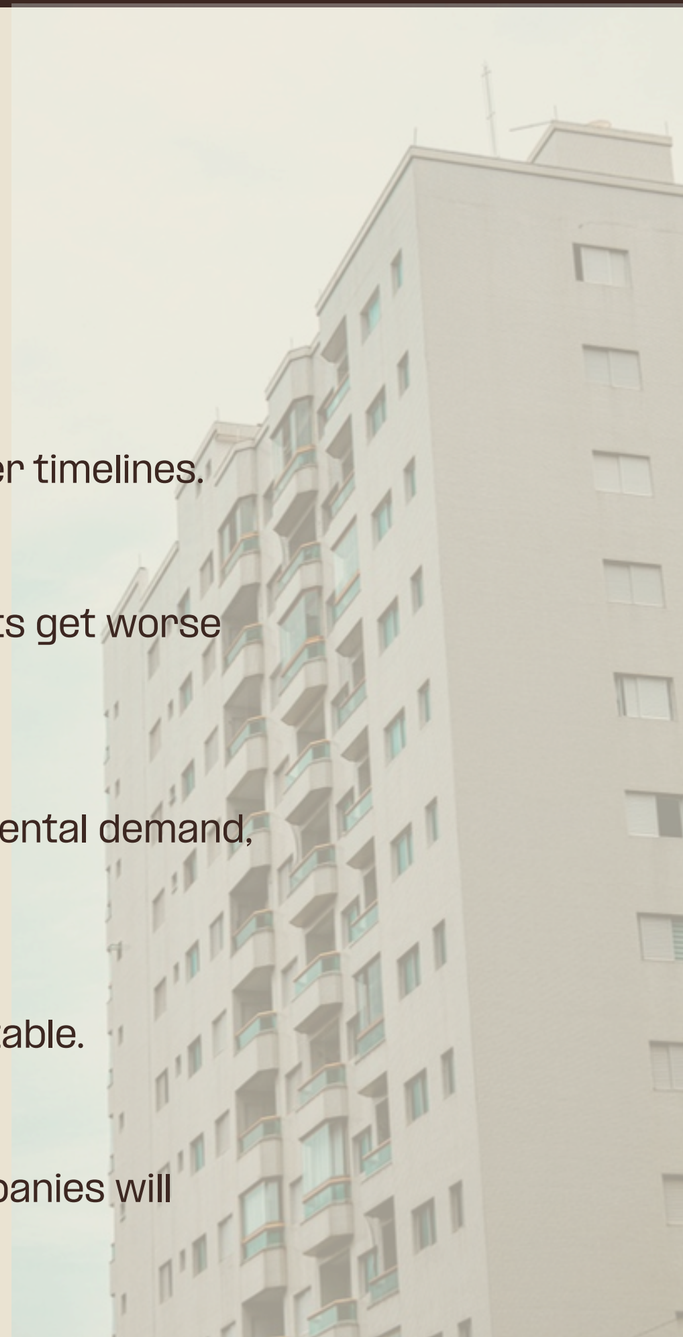
EU Taxonomy

United Nations
Framework Convention on Climate Change

The Cost of not Adapting

What happens if developers don't adapt to ESG regulation?

- **Higher Project Risk & Delays**
  Non–compliant projects face slow or denied approvals, stricter permitting checks, and longer timelines.
- **Limited Access to Financing**
  Banks increasingly require Taxonomy alignment and LCA documentation — non–ESG projects get worse terms or no financing.
- **Lower Valuation & Reduced Buyer Interest**
  Buildings not aligned with CO_2 targets risk "brown discounting" — lower resale value, lower rental demand, harder to exit.
- **Rising Construction Costs**
  Late–stage CO_2 mitigation (retrofitting or compensations) becomes expensive and unpredictable.
- **Exclusion From Public Tenders**
  Public procurement across the EU is becoming LCA/EPC mandatory — non–compliant companies will simply not qualify.



INSIGHTS

From Heavy Construction to Engineered Timber Systems

The construction sector is shifting fast.

Masonry and concrete remain common but are energy–intensive, slow, and carbon–heavy.

CLT introduced a renewable alternative with solid strength and natural appeal, yet its panel design demands more wood, complex finishing, and limits flexibility

Modern prefabricated timber–frame systems achieve the same sustainability goals with far less material, lower embodied carbon, and greater design freedom — combining architectural flexibility with industrial precision for faster, cleaner, more efficient construction.

How the Systems Compare in Practice

CONSTRUCTION SYSTEM

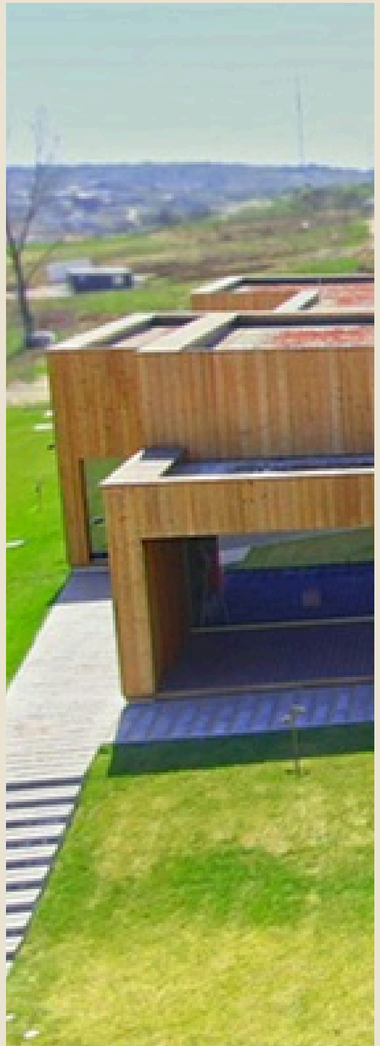
Timber Frame

⊕ Efficient & Sustainable

Optimized wall design reduces wood use and enhances insulation, achieving high energy standards with less material and greater usable space. Prefabrication ensures speed and low carbon impact.

⊖ Precision Require

Needs careful planning, factory accuracy, and certified installation.



CONSTRUCTION SYSTEM

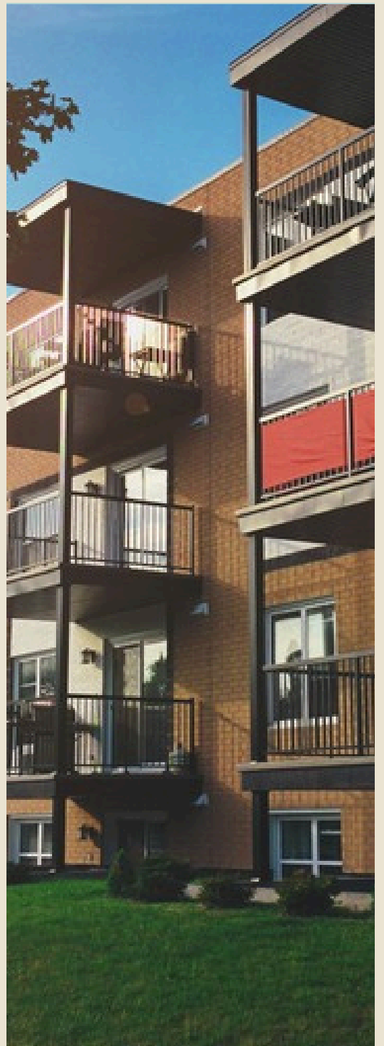
CLT

⊕ Structural Strength & Aesthetic

Solid, high–load panels allow multi–storey builds and warm, natural interiors.

⊖ Sound Transmission & Cost

Panels conduct sound easily and need added layers for comfort. Higher material use and external insulation raise costs.



CONSTRUCTION SYSTEM

Masonry

⊕ Durability & Thermal Mass

Robust, low–maintenance, and stable indoor climate. Non–combustible and familiar to the market.

⊖ Carbon & Construction Speed

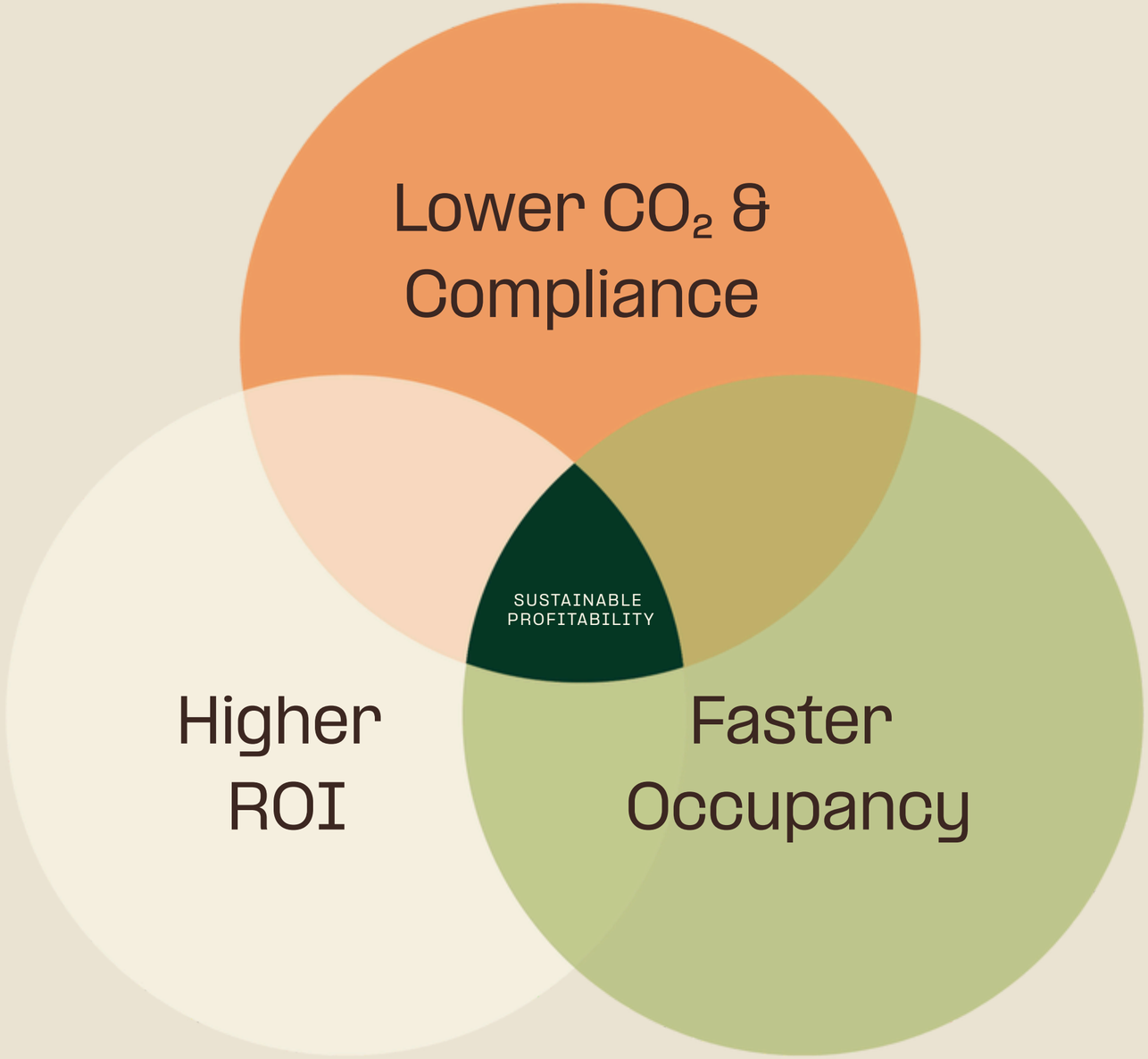
High embodied CO_2 and slow, weather–dependent on–site work extend build time and cost.

OPPORTUNITY

Building What Matters — The Investor's Advantage

How Speed, Sustainability, and Precision Build Real Project Value

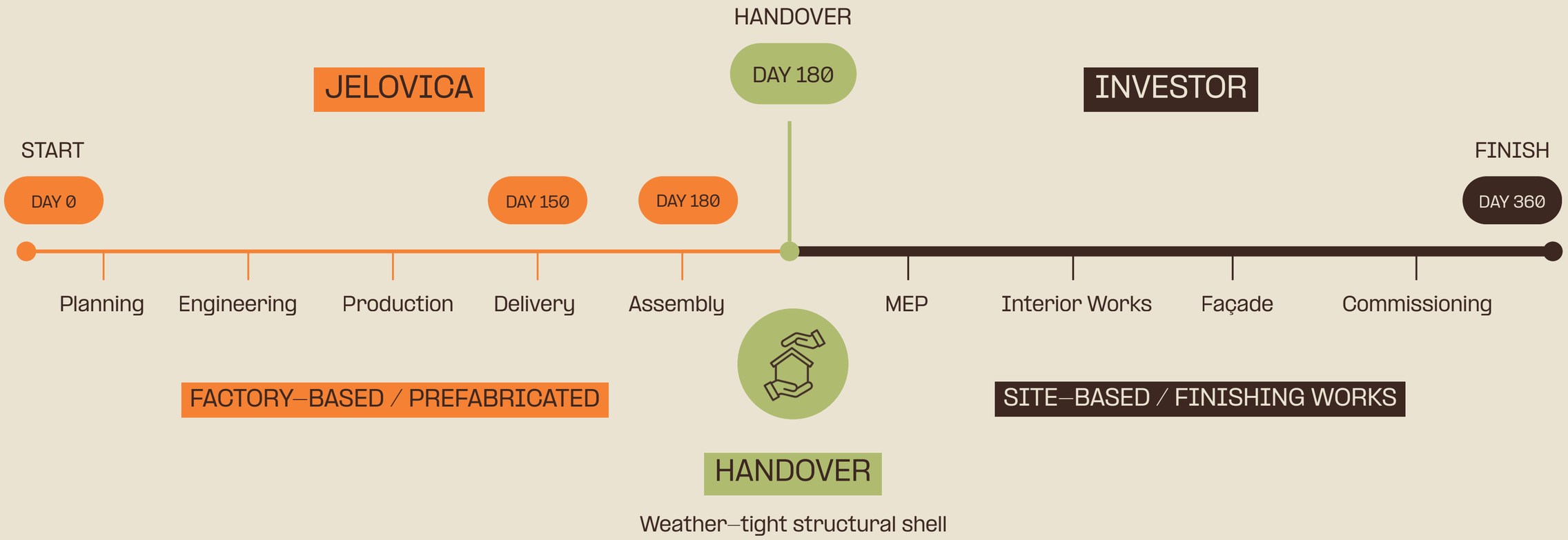
With ESG shaping investment decisions, developers now favor certified building systems that combine speed, predictability, and regulatory compliance.



Building What Matters — The Investor's Advantage

Lower CO_2 & Compliance	83% lower GWP vs masonry. Aligned with EU Taxonomy and national LCA requirements.
Higher ROI	Slimmer walls = +10% floor area → +EUR 2.4 m value per 2,500 m² project. Higher yield within same footprint.
Faster Occupancy	Prefab cuts build time by 30–60 % vs masonry. Earlier rent, lower financing cost.

The most labour–intensive phase is completed in 180 days.



A Smarter, Greener Way to Build

Lower embodied carbon and certified sustainability.

- EU compliance: EPBD, EU Taxonomy & national LCA standards approved.
- Predictable costs and reliable delivery.
- Healthy indoor climate and modern aesthetics.
- Superior fire and sound performance.
- Faster build times and earlier ROI.

SOLUTION

Where Innovation Meets Certification

A European Leader in Timber Construction

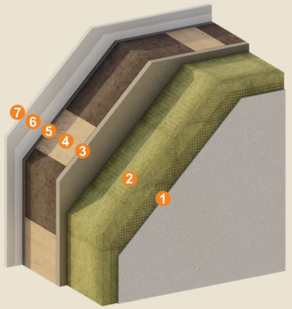
Jelovica has more than 80 years of expertise in prefabricated timber construction, 13 000+ projects delivered, and a strong presence in the DACH market.

- Fast & predictable: prefabrication cuts build time and on–site risk.
- Energy–efficient: airtight timber systems for low energy use.
- Low–carbon: modern timber construction with reduced CO_2.

> **We developed a certified timber–frame wall system that delivers top fire and acoustic performance with lower embodied CO_2 and greater cost efficiency, validated through testing and life–cycle analysis.**

Jelovica Construction System

Exterior walls

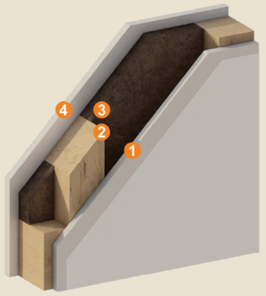


- ↔ 348 mm
- 47 dB
- CO_2 12 $kgCO_2/m_2$
- 0,14 W/m2K
- REI 90

COMPOSITION

1	Mesh–reinforced Render and Top Render	7 mm
2	Mineral Insulation	160 mm
3	Cement–bonded Particle Board	16 mm
4	Timber Frame / Mineral Insulation	140 mm
5	Cement–bonded Particle Board	12 mm
6	Vapor Barrier	0,2 mm
7	Fire Resistant Plasterboard	12.5 mm

Interior Walls

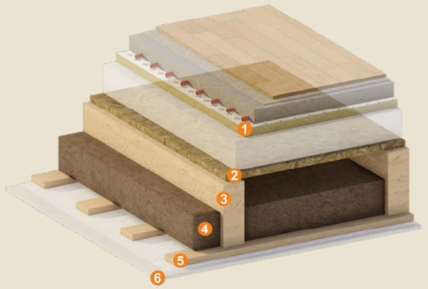


- ↔ 136 mm
- 42 dB
- CO_2 6 $kgCO_2/m_2$
- REI 30

COMPOSITION

1	Fire Resistant Plasterboard	18 mm
2	Timber Frame	100 mm
3	Mineral Insulation	40 mm
4	Fire Resistant Plasterboard	18 mm

Ceiling



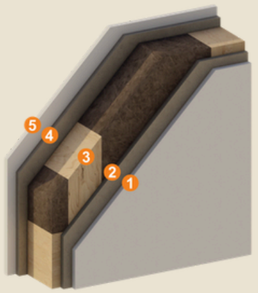
- ↔ 277 mm
- CO_2 –18 $kgCO_2/m_2$
- REI 30

COMPOSITION

1	Screed and Final Layers	not incl.
2	Oriented strand board – OSB	22 mm
3	Timber Joists	220 mm
4	Mineral Insulation	120 mm
5	Timber planks at a distance	22 mm
6	Fire Resistant Plasterboard	12.5 mm

Jelovica Construction System

Interior Walls double layer



↔ 189 mm

51 dB

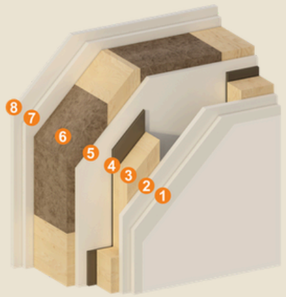
CO_2 2 $kgCO_2/m_2$

REI 90

COMPOSITION

1	Fire Resistant Plasterboard	12.5 mm
2	Cement–bonded Particle Board	12 mm
3	Timber Frame / Mineral Insulation	140 mm
4	Cement–bonded Particle Board	12 mm
5	Fire Resistant Plasterboard	12.5 mm

Interior Walls – Soundproof Wall



↔ 285 mm

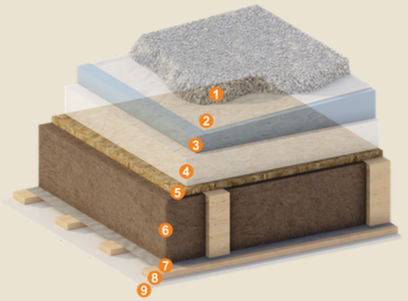
60 dB

REI 90

COMPOSITION

1	Gypsum Fibreboard	15 mm
2	Gypsum Fibreboard	15 mm
3	Timber Frame / Mineral Insulation	100 mm
4	Gypsum Fibreboard	15 mm
5	Acoustic Stripe	8 mm
6	Timber Frame	60 mm
7	Gypsum Fibreboard	15 mm
8	Gypsum Fibreboard	15 mm

Flat Roof



↔ 277 + finishes

CO_2 10 $kgCO_2/m_2$

0.11 W/m_2K

REI 30

COMPOSITION

1	Gravel	not incl.
2	Waterproof Membrane	not incl.
3	EPS sloped Thermal Insulation	20–200 mm
4	EPS Thermal Insulation	100 mm
5	Oriented Strand Board – OSB	22 mm
6	Timber Joists / Mineral Insulation	220 mm
7	Diffusion–variable Vapor Barrier	0,3 mm
8	Timber Planks at a Distance	22 mm
9	Fire Resistant Plasterboard	12.5 mm

SOLUTION

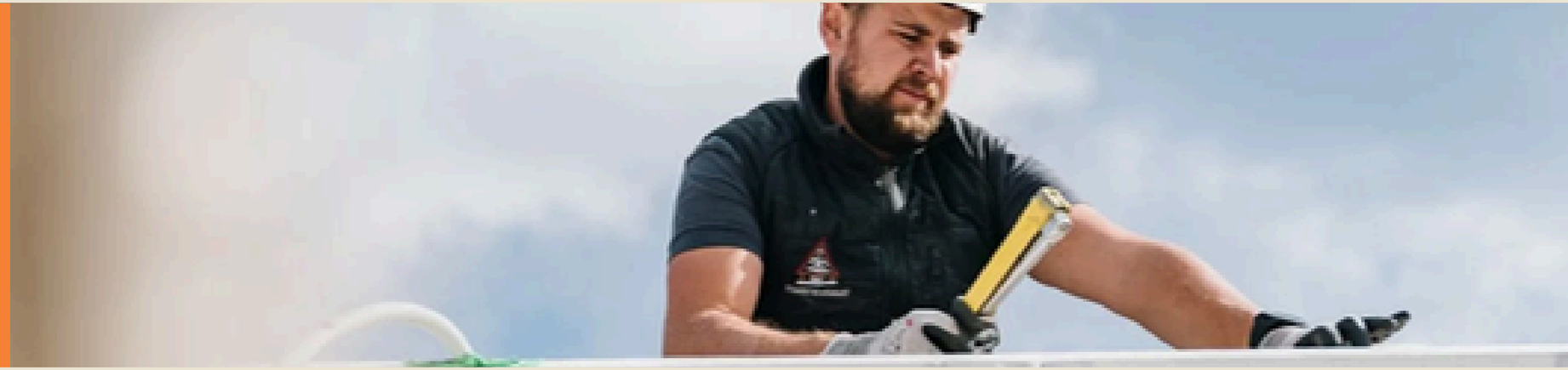
Proven Sustainability and Certified Performance

Certified and tested ecological and technical advantages offering significantly better sustainability performance compared to traditional alternatives. Upgrading to a new Jelovica construction system, projects benefit from:

*GWP (Global Warming Potential) measures the total climate impact of a material over its life cycle — expressed in kg of CO_2 equivalents. A lower GWP means less environmental harm.

10 CO_2/m^2

JELOVICA



60 CO_2/m^2

MASONRY

Jelovica's certified wall compositions delivers unmatched fire, sound, and CO_2 performance. A sustainable system that meets the most stringent building standards.

83%

"Compared to masonry, Jelovica construvtion system reduces production–phase GWP (A1–A3) by 83%, helping projects meet stricter environmental targets and enhancing the building's sustainability profile."

Quantified Performance and Sustainability

The Jelovica system achieves an 83% lower Global Warming Potential (A1–A3) compared with masonry, verified through life–cycle analysis. Its lightweight timber structure reduces foundation volume and transport emissions, while prefabrication cuts construction waste by more than 50%.

All materials are EU Taxonomy–aligned and meet the sustainability and performance criteria required for multi–residential and mixed–use buildings across Europe. The system incorporates non–combustible (A2–s1,d0) protection and high–performance insulation that ensures thermal comfort and indoor air quality certified to Eurofins Gold standards.

83%

LOWER GLOBAL WARMING POTENTIAL

50%

LOWER WASTE

Quantified Performance and Sustainability

METRIC	JELOVICA	CLT	MASONRY
CO_2 (A1–A3)	~10 kg CO_2/m² (–83 %)	~20 kg CO_2/m²	~60 kg CO_2/m²
Build Time	2–3 months	4–6 months	9–18 months
Usable Floor Area	110 % (+10 %)	100%	100%
Fire Safety	REI 90 (A2–s1,d0)	REI 90	REI 90
Sound Insulation	50 dB	45 dB	50 dB
Seismic Resistance	Excellent	Good	Medium
Adaptability	Modular, upgradable	Limited	Rigid

Values are indicative, based on standard LCA assumptions; project–specific results may vary. *Values shown reflect production–stage embodied CO_2 (A1–A3). Full life–cycle (A1–C) results available on request."

Engineering Comparison: How Each System Performs

Each construction method brings unique trade–offs between speed, sustainability, and cost. The table below compares key performance indicators based on verified data and practical experience.

CRITERIA	JELOVICA	CLT	MASONRY
Material use	Optimized wood + insulation → less material, lower cost	~2× more wood vs prefab; +20% cost per m³ vs KVH	High cement / concrete → high CO_2
CO_2 footprint	Very low: lightweight structure, short transport, dry construction, and high energy efficiency during use	Lower (more wood storage), but offset by long construction & transport	Very high (cement = ~8% global CO_2)
Production–phase CO_2 footprint	~10.0 $kgCO_2/m^2$	–30.0 $kgCO_2/m^2$	~60.0 $kgCO_2/m^2$
Thermal (U–value) – Wall 34 cm	0.14 W/m^2K	0.15 W/m^2K	0.20 W/m^2K

Values are indicative, based on standard LCA assumptions; project–specific results may vary. *Values shown reflect production–stage embodied CO_2 (A1–A3). Full life–cycle (A1–C) results available on request."

Engineering Comparison: How Each System Performs

CRITERIA	JELOVICA	CLT	MASONRY
Construction time (4 story)	2–3 months (prefab elements, fast assembly)	4–6 months (on–site finishing needed)	9–12 months (long, on–site heavy)
Production			
Onsite assembly time			
Onsite assembly team required			
Usable space	+10% more usable m² (slim wall build–up)	+10% more usable m² (slim construction, but requires extra insulation)	100 (baseline)
Number of units	16 apartmetns	15–16 apartmets	14 apartmetns
Cost	Index 96: Lower (less material, faster build)	Index 110: Higher (material + finishing)	Index 100: High (labour + materials)

Building Value Through Performance

FEATURE	JELOVICA	CLT	MASONRY
Construction	Prefab wall panels with insulation installed off–site.	Solid wood panels cut to precision off–site.	Built on–site with bricks, mortar, and concrete.
Structural Benefit	High insulation, cost–efficient.	Stable, precise, aesthetic.	Durable, heavy thermal mass.
Speed & Risk	Fastest — dry assembly in weeks; low weather risk.	Fast — panelized, precise.	Slow — wet trades, long curing, high labor risk.
Weight	Lightest — minimal foundations.	4–5× lighter than concrete.	Heaviest — deep, costly foundations.
Design Flexibility	High — modular, adaptable to design.	Moderate — large panels limit options.	Limited — heavy load–bearing walls.
Energy Performance	Excellent — airtight, continuous insulation, Passive House ready.	Good — some thermal bridges in joints.	Moderate — thick insulation needed for compliance.
CO_2 / Environment	Lowest — minimal embodied carbon, wood stores CO_2.	Low — CO_2 storage in solid wood.	Highest — energy–intensive cement/brick.
Fire	Excellent — fire–rated boards & cavity stops.	Good — charring protects core.	Excellent — non–combustible.
Acoustics	Superior — multi–layer system absorbs sound.	Good — heavy panels need extra layers.	Excellent — dense mass dampens sound.
Adaptability	High — modular, easy to extend/upgrade.	Low — hard to modify panels.	Very low — rigid, fixed structure.
Quality Control	High — factory precision.	Medium — site finishing.	Low — weather and labor dependent.
Waste	Minimal — controlled production.	Moderate — site trimming waste.	High — on–site debris.
Seismic	Superior — light, flexible, dissipates energy.	Good — lighter than concrete.	Poor — heavy, brittle, cracks under stress.

Next Generation Construction System

Enabling developers to build faster, safer, and greener — fully aligned with evolving EU ESG standards.

Natural larch cladding

50+ years durability,
minimal maintenace

Slim wall build–ups

+10% more usable
floor area

Flat roofs

Ready for solar and green
roof integration

Prefabricated Timber Frame Sets a New Standard

High living comfort | Faster delivery | Sustainable long–term value

Quality of Living

For homeowners/occupants

Energy–Efficient Comfort

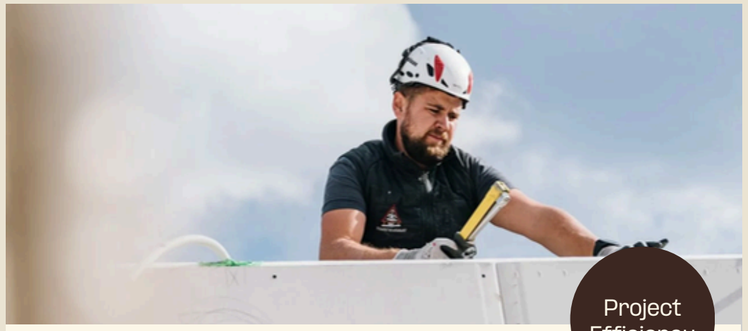
Superior insulation delivers very low energy use and lower bills.

Healthy Indoor Climate

Airtight yet breathable walls regulate humidity and ensure clean air.

Quiet Living

Multi–layer wall system blocks sound for a calm indoor environment.



Project Efficiency

For Developers

Faster Build–Up

Factory production + rapid assembly = earlier occupancy and ROI.

Budget Certainty

Fixed–price panels minimize on–site risk and weather delays.

Precision Fit

CNC accuracy ensures airtight, defect–free construction.

Long–Term Value

For Investors

ESG–Aligned Asset

Low carbon footprint and energy use meet EU sustainability standards.

Market Premium

Certified, healthy homes command higher sales and rental prices.

Design Flexibility

Adaptable façade finishes suit any regional style or regulation.

Five Strategic Takeaways

As building systems evolve, investors face a clear choice between speed, sustainability, and long–term resilience. Timber solutions — especially prefabricated timber frame — now provide superior alignment with financial returns and ESG demands, while masonry retains selective advantages but carries increasing carbon and regulatory risk.

CRITERIA	JELOVICA	CLT	MASONRY
Speed & Financial Risk	Fastest build system; predictable timelines reduce risk and improve ROI.	Quick structural assembly but longer finishing phase.	Slowest; ties up capital longer and increases cost risk.
Energy & Compliance	Easily meets Minergie, BENG, and Passive House standards thanks to optimal insulation–to–structure ratio.	Good energy balance but requires additional insulation.	Needs thick external insulation; higher cost and complexity.
Future–Proofing & ESG	Lowest embodied CO_2; fully aligned with EU Taxonomy and ESG goals.	Lower carbon than masonry but higher material use.	High CO_2 footprint increasingly penalized by regulation.
Design & Adaptability	Modular and flexible; easy to expand, renovate, or upgrade.	Rigid panel system with limited adaptability.	Difficult and costly to modify once built.
Market Positioning & Tenant Value	Sustainable, healthy, and modern living attracts premium buyers and tenants.	Strong aesthetic appeal, limited comfort flexibility.	Traditional but less attractive to modern, wellness–focused markets.

> **Prefab timber frame delivers the best balance of speed, sustainability, and adaptability for modern investment–grade construction.**

About Jelovica

> **Jelovica is Slovenia's leading manufacturer of prefabricated wooden buildings, blending over 120 years of expertise with cutting-edge, energy-autonomous production powered entirely by renewable sources.**

Trusted across Europe, Jelovica has delivered over 13,000 projects that meet the highest standards of sustainability, engineering precision, and architectural design.

13,000+
Buildings

80+
Years

25
Markets

85
Employees

Our Expertise

80+ years of experience in wood construction

40+ years on DACH market as a trusted construction brand

Pioneers in sustainable, energy–efficient timber buildings

Our Capabilities

50+ buildings/year delivered to DACH market

200 buildings/year production capacity

Certified to meet all major standards

Our Values

100% energy self–sufficient production from renewable sources

Natural, high–performance materials

Commitment to low–carbon construction and circularity

Precision + design flexibility

Our references B2B

Sežana, Slovenia; 2025

Aargau, Switzerland; 2024

Fellbach–Schmiden, Germany; 2020

Garmisch, Germany; 2021

Munich, Germany; 2021

Aargau, Switzerland; 2025

Rakek, Slovenia; 2017

Bovec; Slovenia; 2013

Our references B2C

330m2, Slovenia; 2016

234m2, Slovenia; 2023

130m2, Slovenia; 2016

145m2, Slovenia; 2016

159m2, Slovenia; 2022

126m2, Slovenia; 2020

145m2, Slovenia; 2024

166m2, Slovenia; 2022

What problem do we solve?

Cost–effective without compromise

high–quality execution at a competitive price

Tailored architectural solutions

fully adapted to your design vision and project needs

Full–service delivery

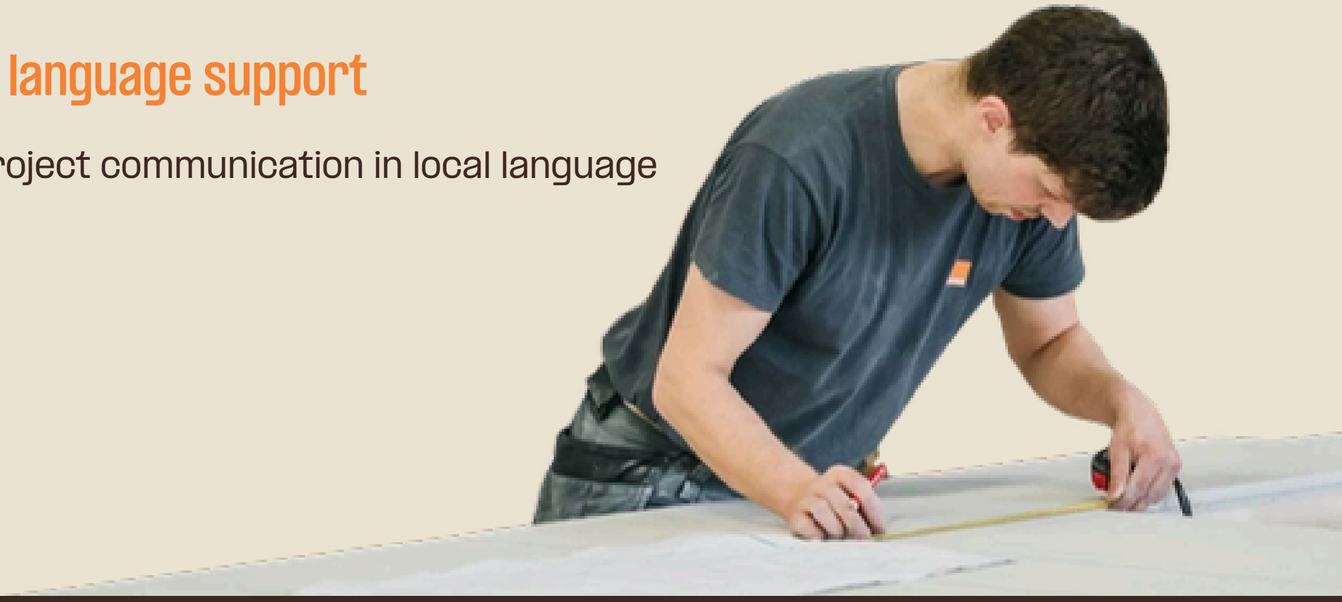
from design to production and on–site assembly

Local language support

fluent project communication in local language

Proven reliability

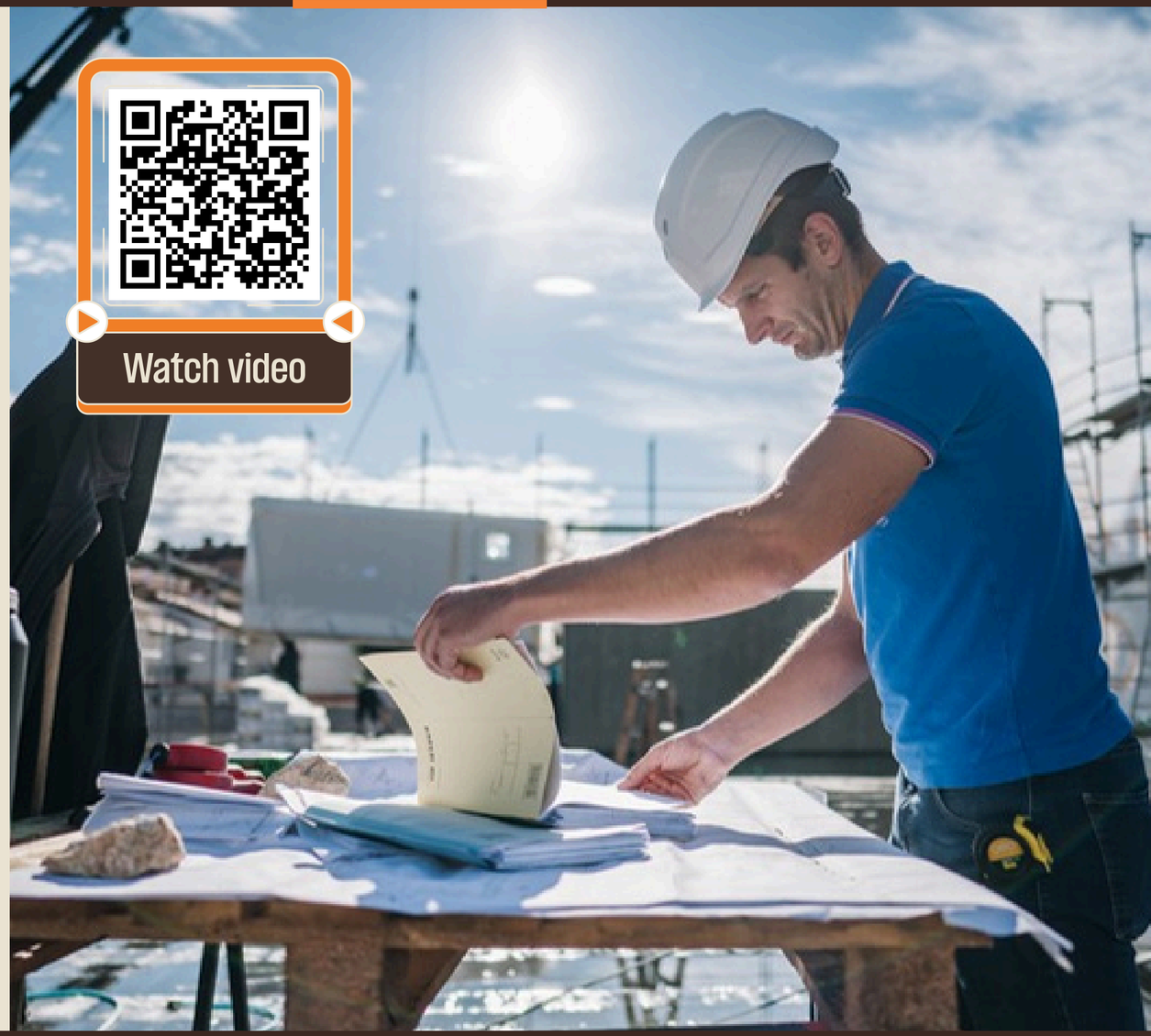
decades of experience and a strong track record in Swiss market



Visit a reference site on www.jelovica.com or send an inquiry to info.hise@jelovica.si.

Interested in building smarter with Jelovica?

Would you like to experience one of our projects in person? Book a reference visit or request a technical information package from our team.



Jelovica hiše d.o.o.

Hrib 1
4205 Preddvor, Slovenia
Tel.: +386 4 275 0324
E: info.hise@jelovica.si

Contact us – we speak your language

Visit a reference site on www.jelovica.com or send an inquiry to info.hise@jelovica.si.

Follow us for more project showcases, and behind–the–scenes insights:

Connect with our team and stay updated on industry news.

See our latest builds and architectural inspiration.

Join our community and discover more stories from the world of wooden architecture.

JELOVICA

Prefab Wooden Houses / Windows