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structural timber



Development of an efficient scheme for timber machine strength grading

Results of a survey in Switzerland

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results of Swiss survey

	sawing industry	manufacturers	timber engineers
sent questionnaires	-	10	54
received answers	-	3	29

- Only sparse interest of sawing industry for participating at the survey however, single sawing mills will be interviewed in the future.
- Manufacturers and engineers with comparable point of views.
- In the following, a selection of answers of timber engineers to the 10 most important questions is shown ...

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Which are your favorite building materials for design?

fraction of structural timber

	100 - 80%	80 - 60%	60 - 40%	40 - 20%	< 20%
[%]	72.5	10.3	3.4	3.4	10.3

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What is your main field of activity as an engineer?

	engineering office spec. on timber engineering	engineering office	construction of prefabricated houses	carpentry
[%]	72.4	24.2	3.4	0

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Which timber species do you mainly apply?

	Spruce / Fir	other softwood	harwoods
[%]	92.5	5.2	2.3

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Which method of strength grading do you prefer?

	machine grading	visual grading	both the same
[%]	31.0	17.2	55.2

comments:

- „As long as the required strength is guaranteed, the method of grading is of no interest. To gain this guarantee machine grading should be applied.“
- „Machine graded timber is preferred however, due to economical reasons visual graded timber has to be ordered.“
- „I see the problem that there is too less machine graded timber available on the Swiss market.“

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What are in your opinion the most important material properties of a timber component?

votes

	strength	stiffness	moisture content	size accuracy	durability	appearance	density
[-]	94	82	81	69	51	44	11

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How could in your eyes the reliability of timber constructions be improved?

votes

	university / studies	grading	standards	others
[-]	19	13	4	15

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Do you think strength grading of structural timber has to be improved?

	YES	NO
[%]	81	19

comments:

- yes, exploitation of strength potential
- yes, to gain more reliability
- yes, better applicability
- yes, more trustable
- more economic usage
- no, improvement only for some products required
- no improvement of standards, application in practice should be improved
- no, sawing industry would be overstrained
- improvement of strength grading only for engineered timber products

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Could you imagine that the utilization of timber and engineered timber products would be enhanced by more efficient machine grading procedures?

	YES	NO
[%]	90	10

comments:

- higher level of quality
- substitution of other building products
- better control of timber material properties
- decreasing costs and increasing efficiency in production
- this is just the case for grading raw material for subsequent manufacturing procedures

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Do you think the certification by means of the CE-label provides more guarantee for reliability of timber products?

	YES	NO	CE-label not known
[%]	35.7	50.0	14.3

comments:

- “CE stands more for product security than product quality. Better labels should be identified.”
- “CE is reasonable, because the relevant timber material properties have to be known (strength, density, manufacturer, country, ...).”

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How do you think the situation of structural timber will change within the next ten years?

votes

	situation has not changed	machine grading more established	structural timber more competitive	other
[-]	6	14	20	2

comments:

- less solid timber with more and more engineered timber products
- more structural timber will be applied
- only a few provider of graded timber will determine the market situation.
- higher prices for wood raw material will cause higher values of structural timber

results of Swiss survey

Main messages:

1. Method of strength grading is preferred.
2. Grading as important part for improvement of reliability of timber constructions.
3. Strength grading has to be improved.
4. More efficient machine grading procedures would enhance the utilization of structural timber.
5. Benefit of CE-marking is not identified.

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Thank you for your attention !



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