



A Note on CFS Requirements

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Requirements

- **Requirement = measurable feature or capability of the to-be facility**
 - The main vertical access shaft must have a diameter of at least 18 meters
 - The crane in the detector hall must be able to lift weights of up to 80 tons
 - **Full set of requirements acts as check-list for design verification**
 - **Proposal for a change in culture:**
Try to capture discussions in terms of requirements
 - i.e., in meetings, keep notes of what has been said/agreed in terms of requirements
 - needs an easy format for requirement writing, if it is to succeed
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Easy Requirements Writing

- **Write simple bulleted lists**
 - One requirement per item
 - **Identify the item on which the requirement acts**
 - The hall ...
 - The crane ...
 - The elevators ...
 - **Wording for properties and capabilities – “have *s.th.*” and “be able to do *s.th.*”**
 - The hall shall have a storage area of $n \times m \text{ m}^2$
 - The transportation system shall be able to evacuate N people in M minutes
 - The crane shall be able to lift up to $80t$
 - **Observation: Summarizing discussions in terms of such requirements is straight forward and easily done**
 - Will build a growing set of requirements over time
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Post-Processing: Requirements Tables

- Add context to requirements for later discussion:
Rationale, justification, origin, status ...
 - Spreadsheet format – started to use for detector hall:

Requirements for the ILC Detector Hall						
Title	Description	Rationale	Numerical Value	Justification	Building	Stakeholders
Magnetic Stray Field	The magnetic stray field at the IP caused by a detector in parking position must be less than	use of iron-based tools	50G	CMS experience, measurements at DESY	DH	Assembly
Magnetic Stray	The magnetic stray field around	functioning of detector near	2000G	unclear	DH	Safety

- Aim: Keep track of why a requirement was raised by whom, in case questions arise during design
- In the beginning, converting bulleted requirements lists to tables can be provided as a service by the DESY team



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