

### Byggavfall – fra problem til ressurs

- 1. C&D Waste from problem to resource
- 2. Waste Management Plan Why and How?
- 3. Survey of hazardous materials and components
- 4. Environmental remediation
- 5. Organisation and sorting on site
- 6. Downstream solutions



### Disposition

- ✓ How to sort in the best possible way?
- ✓ Which fractions are sorted when in the process?
- ✓ Which fractions should and might be sorted?
- √ Logistics
- ✓ Protective cover and clean, dry construction



### Waste management plan is the foundation

#### The waste plan lays the foundation for:

- ✓ Increased reuse
- ✓ Calculation of waste quantities
- ✓ Methodology
- ✓ Logistics
- ✓ Equipment and work staffing

Recruit an experienced waste transporter, identify reuse and recovery options.

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# Important players to prevent/reduce waste generation

- ✓ Architect and designer
- ✓ Design with focus on waste reduction
- ✓ Contractor or designer:
- ✓ Create a suitable waste management plan
- ✓ Contractor: Smart sorting, logistics
- √ Transporter: Facilitation, container solutions, disposal



### Waste generation in project phases

Phases in the project									
Excavation	Foundation	Structure	Façade works	Internnal walls	Installations				
Soil and rock									
Hazardous waste									
	Concrete								
	Metalls								
	EPS/XPS								
		Roof covering							
			Plasterboard						
			Insulation						
			Plastic						
	Wood								
			Glass						
				WEEE					
				Cardboard					



### Logistikk på byggeplass

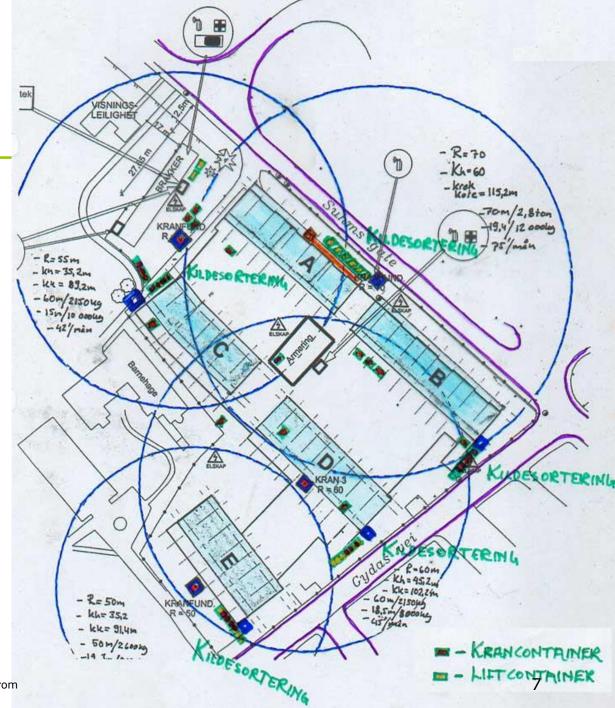
#### Good planning gives better resource use

- ✓ Plan for waste transport out of building
- ✓ Create collection points on strategic locations
- ✓ Determine the number of fractions to be sorted
- ✓ Use ramps to support transport to the containers.
- ✓ Measures to help choosing the right container
- ✓ Reduce the need for manual liftingfor
- ✓ Locate the general waste container less available this may contribute to increased sorting



### Rig plan

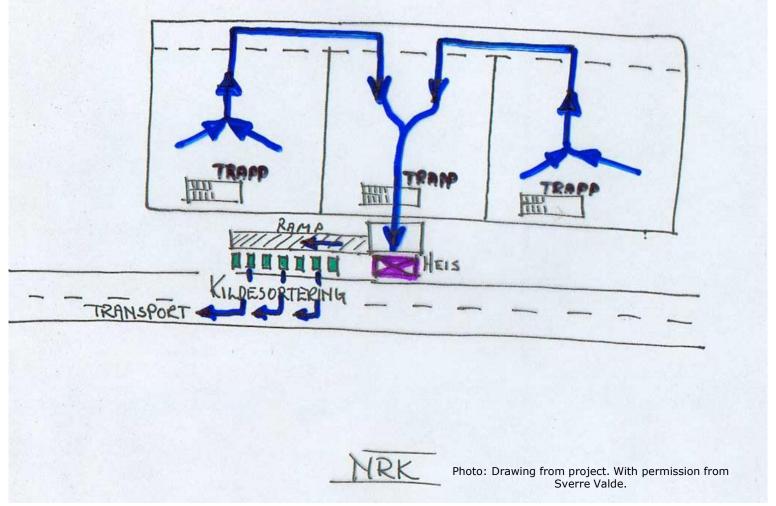
- ✓ Plan collection points.
- ✓ These should be within the crane's operating radius





### Detailed plan







#### Hazardous waste

Remains of paint, glue, grout cartridges, chemicals and hazardous waste from environmental remediation

- ✓ Skal alltid sorteres ut
- ✓ Sorteres som egne fraksjoner (ikke sammenblandes)
- ✓ Må håndteres forsvarlig
- ✓ Skal leveres til godkjent mottak
- ✓ Anbefalt låsbare containere





### The earth engineering phase

- ✓ Metalls
- ✓ Wood
- √ Hazardous waste
- ✓ EPS/XPS
- √ General waste





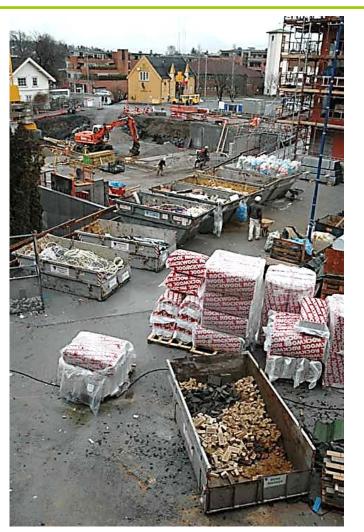
Photo: Guro Kristine Milli



#### Structure/internal work

#### Several containers of different sizes:

- ✓ Plastic foil
- ✓ Hard plastic
- ✓ Styrofoam
- ✓ Cables
- ✓ WEEE
- ✓ Plaster
- ✓ Hazardous waste
- ✓ Impregnated wood
- ✓ Clean wood
- ✓ Bricks/concrete
- ✓ General waste





#### **Plastic**

- ✓ Use several containers with different sizes
- ✓ A heavy and a light fraction in the same container
  Less transport 4x7 plastic bags



Photo: Eirik Werner



### **Plaster**



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#### Insulation

- ✓ Use sacks in the building.
- ✓ Use containers outside. Use net or other covers to prevent spillage.





Phot: Eirik Werner



#### Cables and WEE

Cables are classified as WEE. Must be collected and sorted as a separate fraction.





Photo: Guro Kristine Milli



### Heavy construction materials

- Clean materials are used for back filling
- Must be free of contamination from paint, plaster, sealants etc., as well as reinforcement
- ✓ Expensive to deliver as mixed waste
- ✓ Largest faction



Photo: Sverre Valde



### Contaminated concrete/bricks







Photo: Sverre Valde

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#### Wood



- ✓ Untreated wood
- √ Treated wood
- ✓ Impregnated wood

Photo: Sverre Valde

Avoid "air", it is expensive to transport



### Metals

- Recycling of metals has several hundred years of tradition
- ✓ You get paid for delivering metals



Photo: Sverre Valde



#### General waste



Photo: Sverre Valde

- ✓ Minimize generation of general waste
- ✓ General waste waste is expensive to dispose of
- ✓ Is your sorting degree satisfactory?
- $\checkmark$
- ✓ Never keep hazardous waste and WEEE in the general waste

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### Did anyone complain about limited space?

#### Intermediate storage awaiting containers









### Sites with limited space

- ✓ Several master builders bring the waste to collection facility and sort waste themselves upon delivery
- ✓ Then you don't get any documentation on sorting level
- ✓ Bag solutions are an alternative for increased waste sorting. You will then be able to obtain documentation of what has been sorted



Photo: Guro Kristine Milli

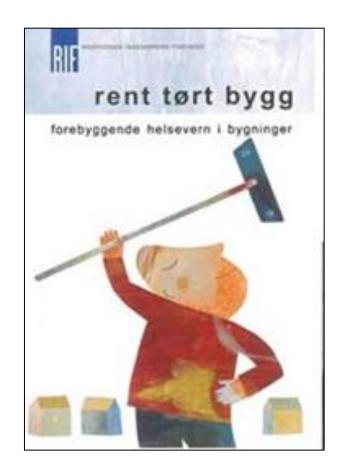
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### Clean, dry building (CDB)

## CDB offers many advantages:

- Clean and tidy
- ✓ Better waste sorting
- ✓ RIF has prepared a guide for CDB (RTB)





### Safety inspection

#### Waste should also be a topic

- ✓ Safety inspection may be held weekly.
- ✓ Incorrect sorting and littering can be documented with a photo
- ✓ The person responsible for incorrectly sorted waste should be informed.
- ✓ The subcontractor can be invoiced if the waste is not sorted well enough, if this is stipulated in the contract.

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### Beneficial effects of waste sorting

- ✓ More materials can be sent for reuse
- ✓ Hazardous waste is sorted out.
- ✓ Better stacking in the containers, less transport of air.
- ✓ Fewer container transports.
- ✓ Increased knowledge about waste and source sorting will increase the rate of recycling.
- ✓ Many fractions can be delivered at a reduced price.
- ✓ There are producer responsibility schemes for several waste fractions.



Photo: Terje Borud sortere.no/bedrift