

# PRESENTATION OF THE MAIN RISKS SITUATIONS PER COUNTRY ACCORDING TO RESULTS OF QUESTIONNAIRES

## SAFECEMENT

A 3D animation for promoting healthy workplaces in  
cement quarrying and production plants

2<sup>nd</sup> meeting in Riga  
24/03/2015

# QUESTIONNAIRE TO IDENTIFY THE WORK ENVIRONMENT IN CEMENT SECTOR



QUESTIONÁRIO PARA CARACTERIZAR O AMBIENTE  
DE TRABALHO NO SECTOR CIMENTEIRO



v 0.5 – 09 / janeiro / 2014

CUESTIONARIO DE IDENTIFICACIÓN DE LAS  
CONDICIONES DE TRABAJO EN LA INDUSTRIA DEL  
SECTOR CEMENTERO



Versión 0.5 – 09 de Enero de 2014

Version 0.5 – 22 December 2014





# SAFECEMENT Project. QUESTIONNAIRE TO IDENTIFY THE WORK ENVIRONMENT IN CEMENT SECTOR

Objective of the survey.

This document intends to contribute key information for the technical team of SAFECEMENT project, in this way 3D animations will be developed according to requirements on prevention which is based on risks associated and the causes.

How to fill in the survey.

Please, follow these instructions to fill in this document:

1º.- It will be selected the main risks that you consider as the most dangerous for each work station based on possibilities and consequences. It will be designated:

- 6 risks of occupational safety.
- 2 risk of industrial hygiene.
- 1 ergonomic risk.
- 1 psychosocial risk.

2º.- These 10 selected risks will be filled in the tables to define causes which are related to the risks. In addition, each risk will be marked to know how dangerous it is.

3º.- Finally, if you think necessary, you could make appropriate comments.

\*Obrigatorio

\*

Questionnaire supplied by:

## GROUP 1 | Risks of occupational safety (please, mark 6 risks).

Risks related to occupational safety are those which occur immediately.



Continuar »

## Projecto SAFECEMENT. QUESTIONÁRIO PARA CARACTERIZAR O AMBIENTE DE TRABALHO NO SECTOR CIMENTEIRO

Objectivo do estudo.

Pretende-se com o presente documento contribuir com informações relevantes para o projecto SAFECEMENT, que permitam desenvolver diversas animações 3D de acordo com os requisitos em matéria de prevenção, baseadas nos riscos a eles associados e nas respectivas causas.

Instruções de preenchimento.

Siga as seguintes instruções para preencher o questionário.

1º Deverá seleccionar os 10 principais riscos para cada/seu posto de trabalho com base na probabilidade de acontecer e respectivas consequências. Deverão ser identificados:

- 6 Riscos de Segurança no trabalho.
- 2 Riscos de Higiene industrial.
- 1 Risco Ergonómico.
- 1 Risco Psicossocial.

2º Para os 10 riscos seleccionados, deverão ser indicadas as causas que lhes estão associadas. Além disso, cada risco deverá ser assinalado para se identificar o seu grau de perigosidade.

3º Caso julgue necessário, pode complementar a sua resposta com comentários apropriados.

\*Obrigatorio

\*

Questionário disponibilizado pela:

### GRUPO 1 | Riscos de Segurança no Trabalho

Os riscos relacionados com a segurança no trabalho são aqueles que ocorrem de imediato por:

\*

Seleccione apenas 6 riscos.

- 1.01. QUEDA DE UMA ALTURA DIFERENTE.
- 1.02. QUEDA DA MESMA ALTURA.
- 1.03. QUEDA DE OBJECTOS DEVIDA A COLAPSO.
- 1.04. QUEDA DE OBJECTOS DURANTE A SUA MANIPULAÇÃO.
- 1.05. QUEDA DE OBJECTOS SOLTOS.
- 1.06. PISAR OBJECTOS.
- 1.07. CHOQUE COM OBJECTOS FIXOS.
- 1.08. CHOQUE COM OBJECTOS MÓVEIS.
- 1.09. CORTES E GOLPES POR OBJECTOS OU FERRAMENTAS.
- 1.10. PROJECÇÃO DE FRAGMENTOS DE MATERIAL OU PARTÍCULAS.

## Projecto SAFECEMENT. CUESTIONARIO DE IDENTIFICACIÓN DE LAS CONDICIONES DE TRABAJO EN LA INDUSTRIA DEL SECTOR CEMENTERO

Objetivo de la encuesta.

El presente documento pretende aportar la información necesaria al equipo de trabajo del proyecto SAFECEMENT para conseguir elaborar unas animaciones acorde a las necesidades que en materia preventiva se están dando en el sector en base a los riesgos asociados y las causas que los provocan.

Cómo rellenar la encuesta

El procedimiento para rellenar el presente documento es el siguiente:

1º.- Se seleccionarán los principales riesgos que el encuestado entienda que tienen mayor presencia en el puesto de trabajo en función de la probabilidad y la consecuencia. Se identificarán:

- 6 riesgos de seguridad laboral.
- 2 riesgos de higiene industrial.
- 1 riesgo ergonomia.
- 1 riesgo psicossocial.

2º.- En función de los 10 riesgos identificados se procederá a rellenar las tablas que identifican diversas causas asociadas a los riesgos y por último se anotará un valor para cada riesgo en cada tabla con el fin de conocer la peligrosidad del mismo.

3º.- Por último, si lo desea, podrá realizar las observaciones que crea conveniente.

\*Obrigatorio

\*

Questionario facilitado por:

### GRUPO 1 | Riesgos de seguridad laboral

Los riesgos de seguridad laboral son aquellos que se manifiestan de manera inmediata:

\*

Por favor, marque sólo 6 riesgos

- 1.01. CAÍDA DE PERSONAS A DISTINTO NIVEL
- 1.02. CAÍDA DE PERSONAS AL MISMO NIVEL
- 1.03. CAÍDA DE OBJETOS POR DESPLOME O DERRUMBAMIENTO
- 1.04. CAÍDA DE OBJETOS EN MANIPULACIÓN
- 1.05. CAÍDA DE OBJETOS DESPRENDIDOS
- 1.06. PISADAS SOBRE OBJETOS
- 1.07. CHOQUES CONTRA OBJETOS INMÓVILES
- 1.08. CHOQUES CONTRA OBJETOS MÓVILES
- 1.09. CORTES E GOLPES POR OBJETOS O FERRAMENTAS
- 1.10. PROJECÇÃO DE FRAGMENTOS DE MATERIAL OU PARTÍCULAS

## Objective of the survey

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This document intends to contribute key information for the technical team of SAFECEMENT project, in this way 3D animations will be developed according to requirements on prevention which is based on risks associated and the causes.

## How to fill in the survey

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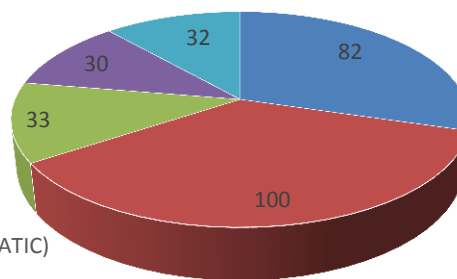
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Questionnaire supplied by:	No. of answers	%
ASSOCIAÇÃO TÉCNICA DA INDÚSTRIA DE CIMENTO (ATIC)	82	29,60%
FUNDACIÓN CEMA (CEMA)	100	36,10%
ASOCIACIÓN EMPRESARIAL DE INVESTIGACIÓN CENTRO TECNOLÓGICO DEL MÁRMOL, PIEDRA Y MATERIALES (CTM)	33	11,91%
CHALMERS TEKNISKA HOEGSKOLA AB (CHALMERS)	30	10,83%
SIA CEMEX (CEMEX)	32	11,55%
	<b>277</b>	100,00%

## Questionnaire supplied by:

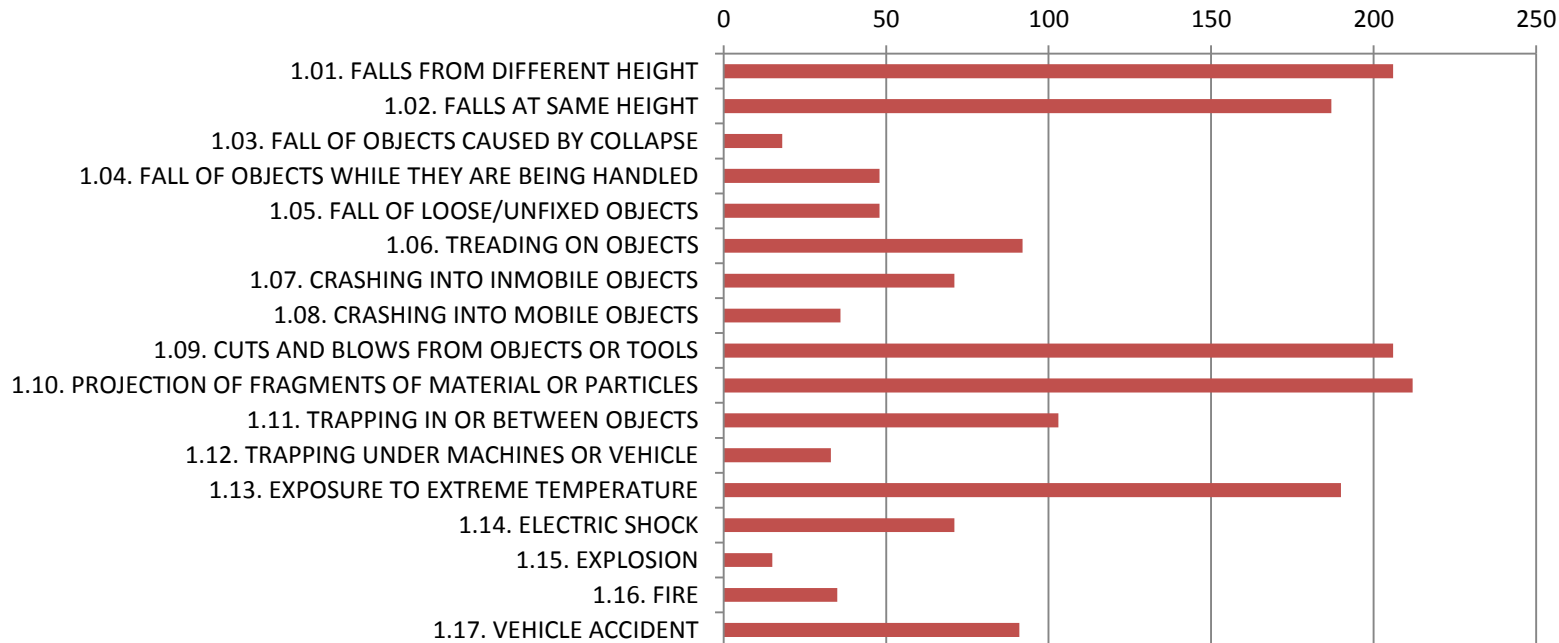
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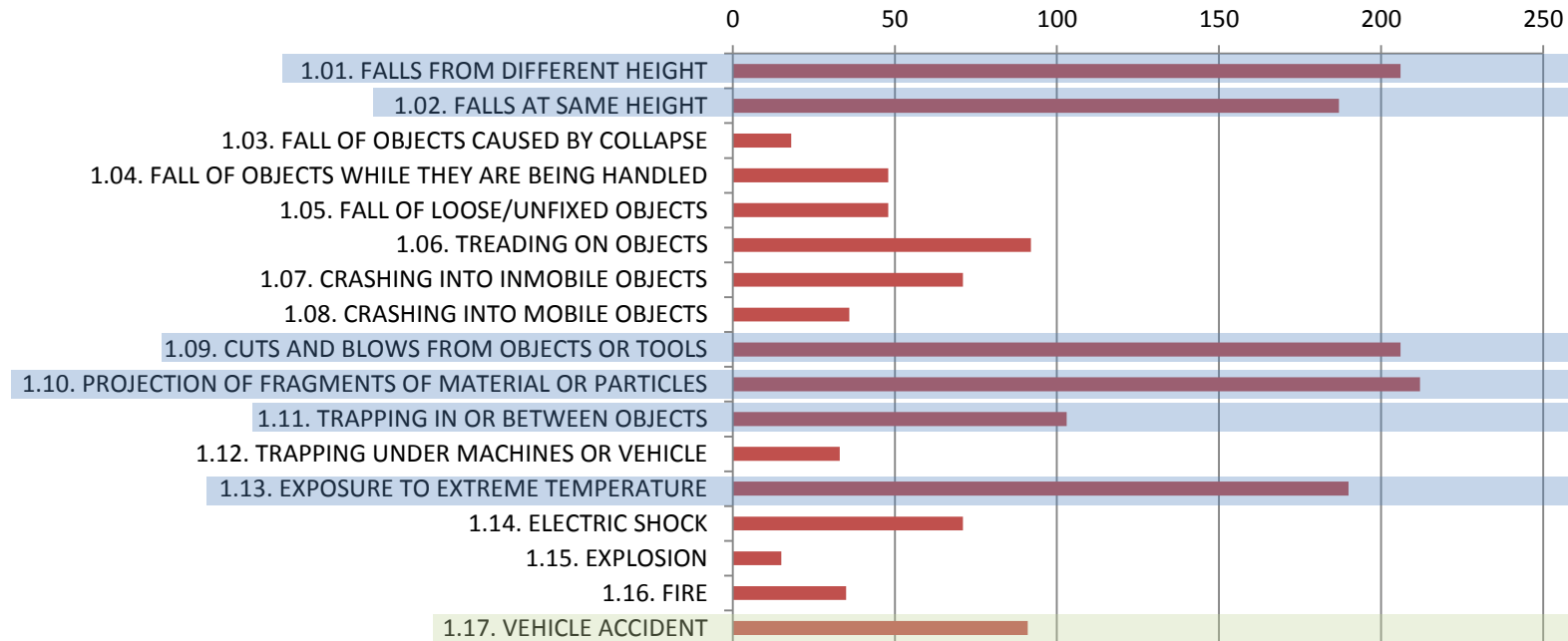
**GROUP 1 | Risks of occupational safety**

1.01. FALLS FROM DIFFERENT HEIGHT	206	12,39%
1.02. FALLS AT SAME HEIGHT	187	11,25%
1.03. FALL OF OBJECTS CAUSED BY COLLAPSE	18	1,08%
1.04. FALL OF OBJECTS WHILE THEY ARE BEING HANDLED	48	2,89%
1.05. FALL OF LOOSE/UNFIXED OBJECTS	48	2,89%
1.06. TREADING ON OBJECTS	92	5,54%
1.07. CRASHING INTO INMOBILE OBJECTS	71	4,27%
1.08. CRASHING INTO MOBILE OBJECTS	36	2,17%
1.09. CUTS AND BLOWS FROM OBJECTS OR TOOLS	206	12,39%
1.10. PROJECTION OF FRAGMENTS OF MATERIAL OR PARTICLES	212	12,76%
1.11. TRAPPING IN OR BETWEEN OBJECTS	103	6,20%
1.12. TRAPPING UNDER MACHINES OR VEHICLE	33	1,99%
1.13. EXPOSURE TO EXTREME TEMPERATURE	190	11,43%
1.14. ELECTRIC SHOCK	71	4,27%
1.15. EXPLOSION	15	0,90%
1.16. FIRE	35	2,11%
1.17. VEHICLE ACCIDENT	91	5,48%
		100,00%



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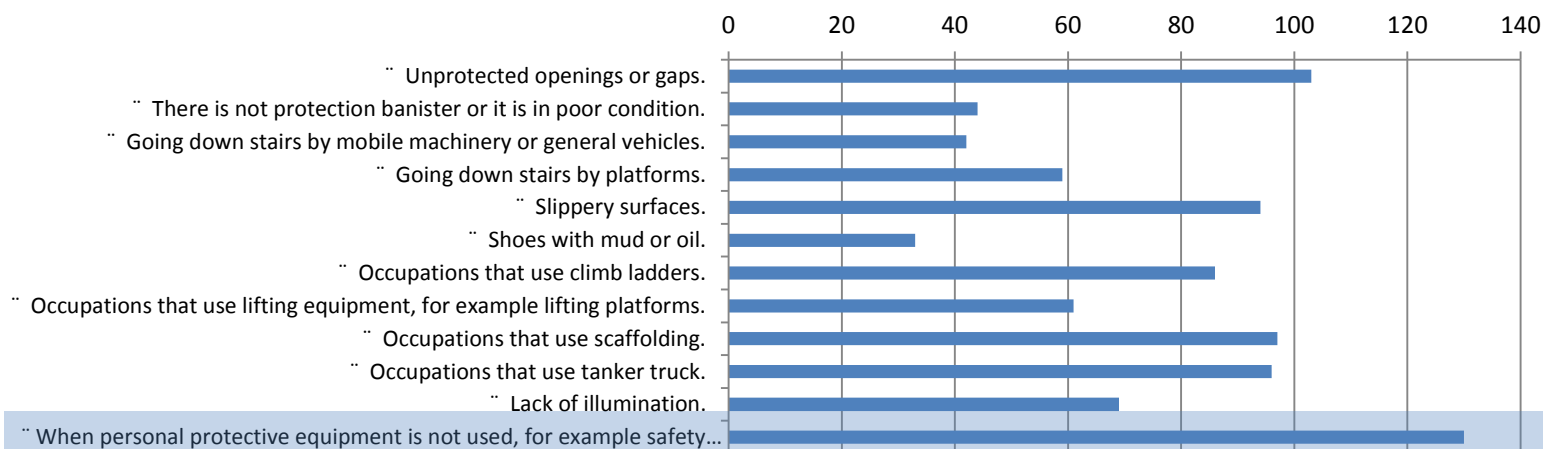


## Education and Vocational Training Strategic Partnerships

### 1.01. FALLS FROM DIFFERENT HEIGHT

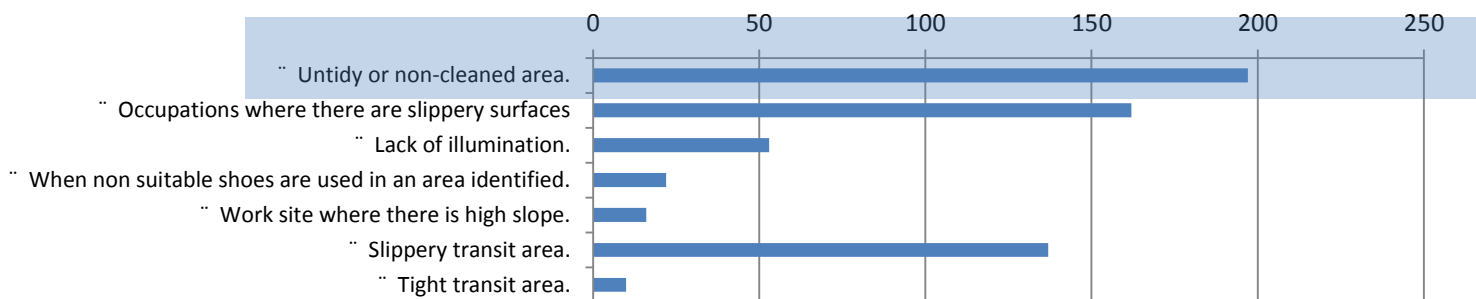
<input type="checkbox"/> Unprotected openings or gaps.	103	11,27%
<input type="checkbox"/> There is not protection banister or it is in poor condition.	44	4,81%
<input type="checkbox"/> Going down stairs by mobile machinery or general vehicles.	42	4,60%
<input type="checkbox"/> Going down stairs by platforms.	59	6,46%
<input type="checkbox"/> Slippery surfaces.	94	10,28%
<input type="checkbox"/> Shoes with mud or oil.	33	3,61%
<input type="checkbox"/> Occupations that use climb ladders.	86	9,41%
<input type="checkbox"/> Occupations that use lifting equipment, for example lifting platforms.	61	6,67%
<input type="checkbox"/> Occupations that use scaffolding.	97	10,61%
<input type="checkbox"/> Occupations that use tanker truck.	96	10,50%
<input type="checkbox"/> Lack of illumination.	69	7,55%
<input type="checkbox"/> When personal protective equipment is not used, for example safety harness	130	14,22%
		100,00%

1.01. FALLS FROM DIFFERENT HEIGHT

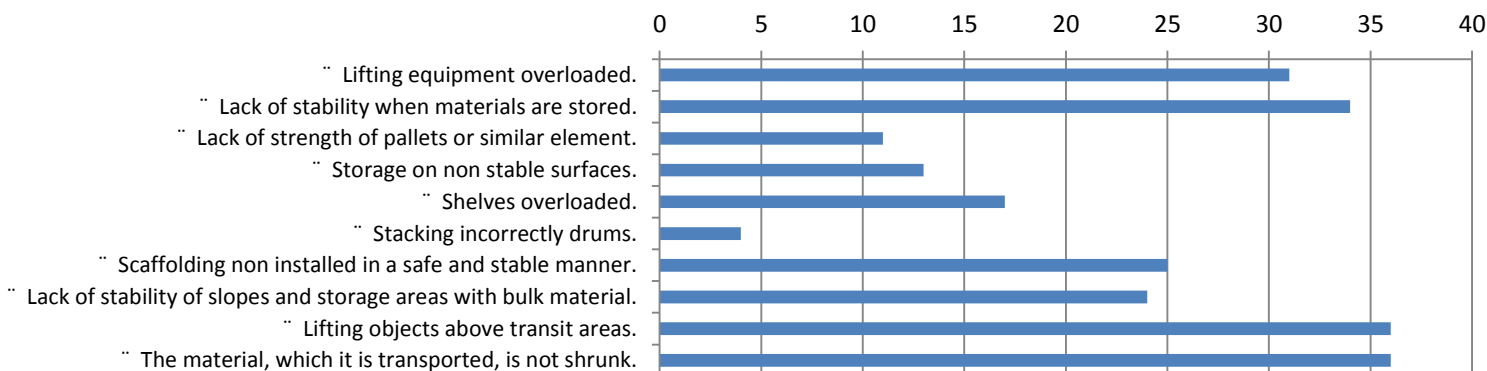


**1.02. FALLS AT SAME HEIGHT**

<input type="checkbox"/> Untidy or non-cleaned area.	197	33,00%
<input type="checkbox"/> Occupations where there are slippery surfaces	162	27,14%
<input type="checkbox"/> Lack of illumination.	53	8,88%
<input type="checkbox"/> When non suitable shoes are used in an area identified.	22	3,69%
<input type="checkbox"/> Work site where there is high slope.	16	2,68%
<input type="checkbox"/> Slippery transit area.	137	22,95%
<input type="checkbox"/> Tight transit area.	10	1,68%
		100,00%

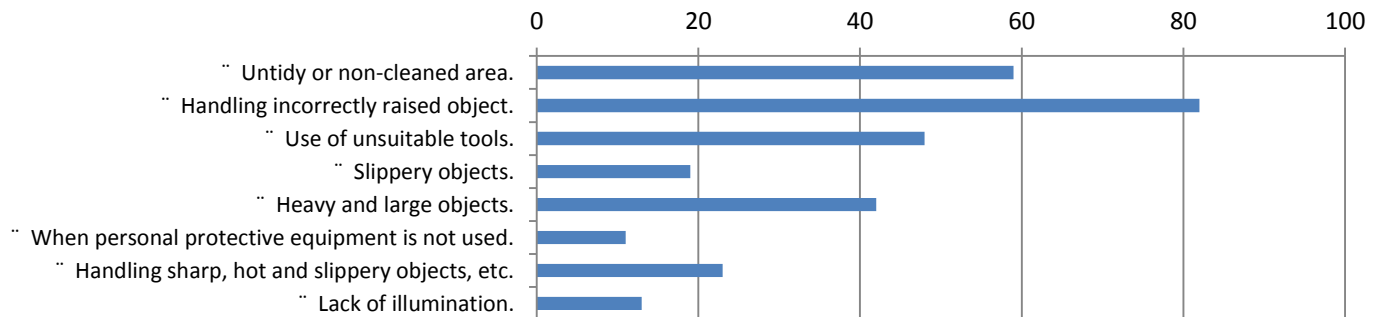
**1.02. FALLS AT SAME HEIGHT**


1.03. FALL OF OBJECTS CAUSED BY COLLAPSE			
<input type="checkbox"/>	Lifting equipment overloaded.	31	13,42%
<input type="checkbox"/>	Lack of stability when materials are stored.	34	14,72%
<input type="checkbox"/>	Lack of strength of pallets or similar element.	11	4,76%
<input type="checkbox"/>	Storage on non stable surfaces.	13	5,63%
<input type="checkbox"/>	Shelves overloaded.	17	7,36%
<input type="checkbox"/>	Stacking incorrectly drums.	4	1,73%
<input type="checkbox"/>	Scaffolding non installed in a safe and stable manner.	25	10,82%
<input type="checkbox"/>	Lack of stability of slopes and storage areas with bulk material.	24	10,39%
<input type="checkbox"/>	Lifting objects above transit areas.	36	15,58%
<input type="checkbox"/>	The material, which it is transported, is not shrunk.	36	15,58%
			100,00%

**1.03. FALL OF OBJECTS CAUSED BY COLLAPSE**


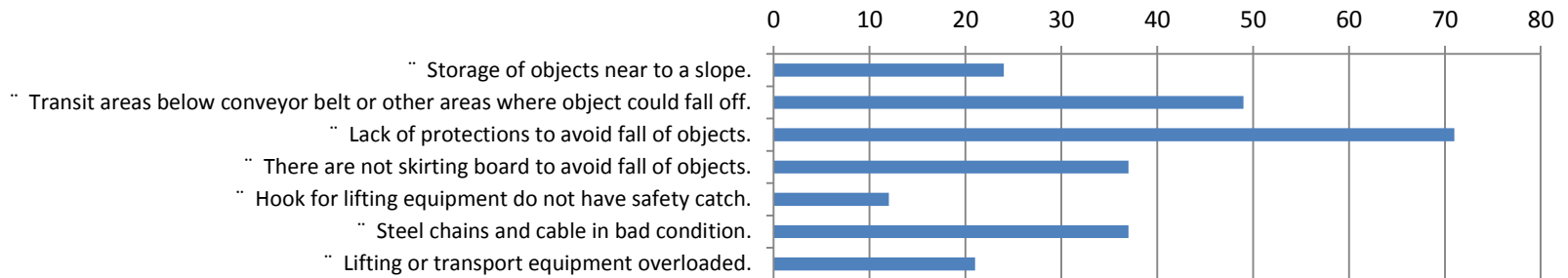
1.04. FALL OF OBJECTS WHILE THEY ARE BEING HANDLED			
<input type="checkbox"/>	Untidy or non-cleaned area.	59	19,87%
<input type="checkbox"/>	Handling incorrectly raised object.	82	27,61%
<input type="checkbox"/>	Use of unsuitable tools.	48	16,16%
<input type="checkbox"/>	Slippery objects.	19	6,40%
<input type="checkbox"/>	Heavy and large objects.	42	14,14%
<input type="checkbox"/>	When personal protective equipment is not used.	11	3,70%
<input type="checkbox"/>	Handling sharp, hot and slippery objects, etc.	23	7,74%
<input type="checkbox"/>	Lack of illumination.	13	4,38%
			100,00%

1.04. FALL OF OBJECTS WHILE THEY ARE BEING HANDLED

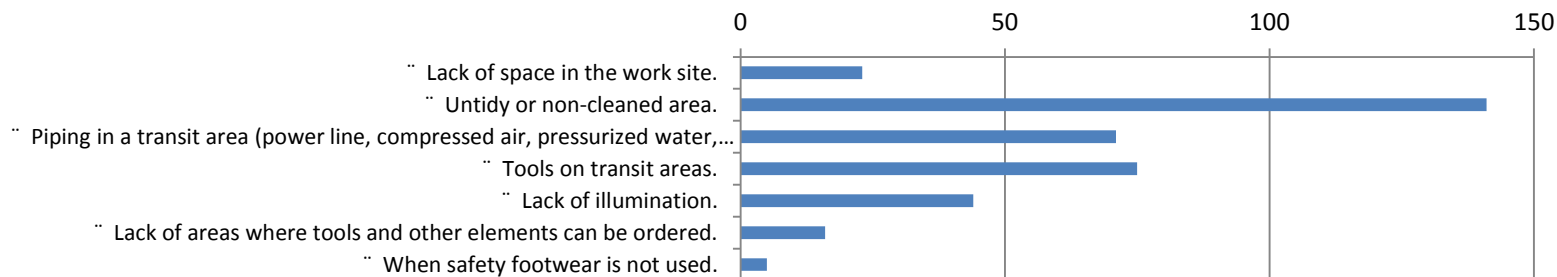


1.05. FALL OF LOOSE/UNFIXED OBJECTS			
<input type="checkbox"/>	Storage of objects near to a slope.	24	9,56%
<input type="checkbox"/>	Transit areas below conveyor belt or other areas where object could fall off.	49	19,52%
<input type="checkbox"/>	Lack of protections to avoid fall of objects.	71	28,29%
<input type="checkbox"/>	There are not skirting board to avoid fall of objects.	37	14,74%
<input type="checkbox"/>	Hook for lifting equipment do not have safety catch.	12	4,78%
<input type="checkbox"/>	Steel chains and cable in bad condition.	37	14,74%
<input type="checkbox"/>	Lifting or transport equipment overloaded.	21	8,37%
			100,00%

1.05. FALL OF LOOSE/UNFIXED OBJECTS



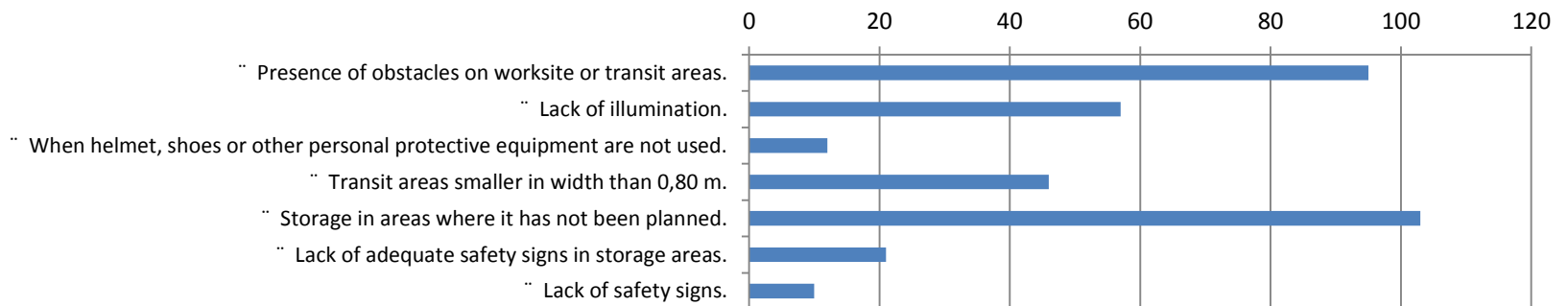
1.06. TREADING ON OBJECTS		
<input type="checkbox"/> Lack of space in the work site.	23	6,13%
<input type="checkbox"/> Untidy or non-cleaned area.	141	37,60%
<input type="checkbox"/> Piping in a transit area (power line, compressed air, pressurized water, fuel line...)	71	18,93%
<input type="checkbox"/> Tools on transit areas.	75	20,00%
<input type="checkbox"/> Lack of illumination.	44	11,73%
<input type="checkbox"/> Lack of areas where tools and other elements can be ordered.	16	4,27%
<input type="checkbox"/> When safety footwear is not used.	5	1,33%
		100,00%

**1.06. TREADING ON OBJECTS**


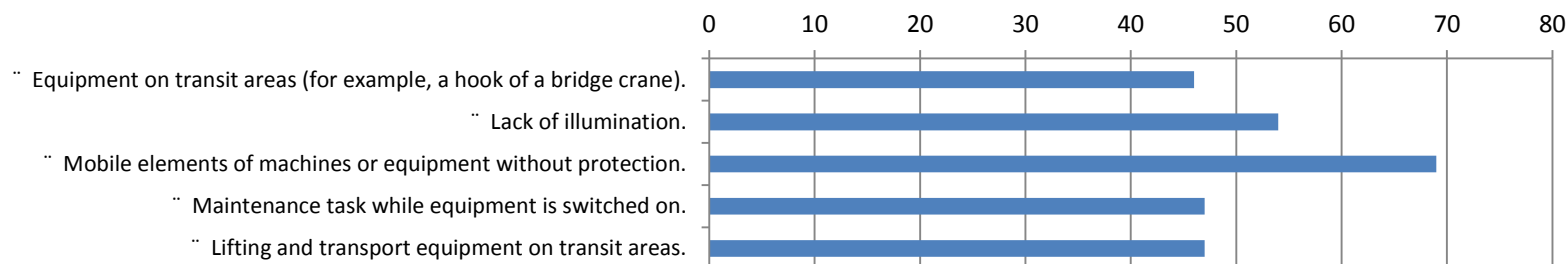


1.07. CRASHING INTO IMMOBILE OBJECTS			
<input type="checkbox"/>	Presence of obstacles on worksite or transit areas.	95	27,62%
<input type="checkbox"/>	Lack of illumination.	57	16,57%
<input type="checkbox"/>	When helmet, shoes or other personal protective equipment are not used.	12	3,49%
<input type="checkbox"/>	Transit areas smaller in width than 0,80 m.	46	13,37%
<input type="checkbox"/>	Storage in areas where it has not been planned.	103	29,94%
<input type="checkbox"/>	Lack of adequate safety signs in storage areas.	21	6,10%
<input type="checkbox"/>	Lack of safety signs.	10	2,91%
			100,00%

1.07. CRASHING INTO IMMOBILE OBJECTS

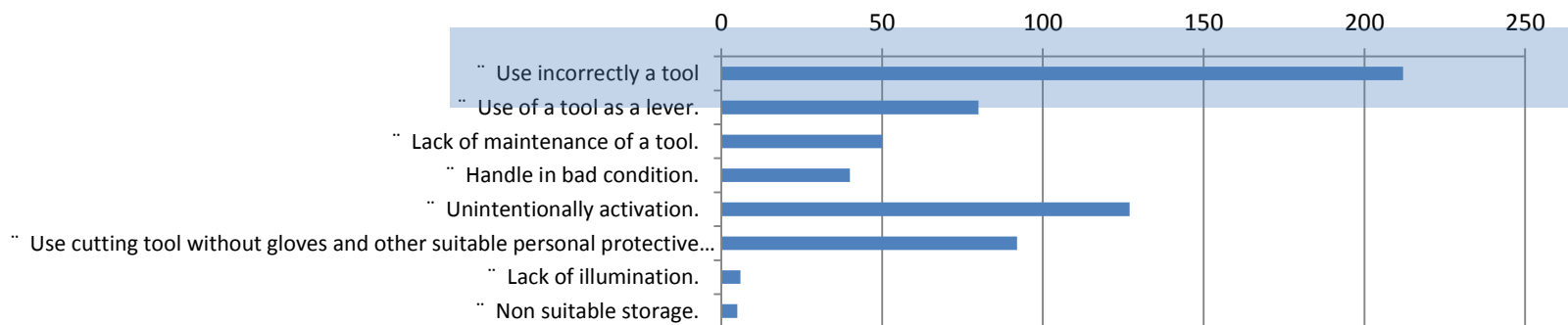


1.08. CRASHING INTO MOBILE OBJECTS			
<input type="checkbox"/>	Equipment on transit areas (for example, a hook of a bridge crane).	46	17,49%
<input type="checkbox"/>	Lack of illumination.	54	20,53%
<input type="checkbox"/>	Mobile elements of machines or equipment without protection.	69	26,24%
<input type="checkbox"/>	Maintenance task while equipment is switched on.	47	17,87%
<input type="checkbox"/>	Lifting and transport equipment on transit areas.	47	17,87%
			100,00%

**1.08. CRASHING INTO MOBILE OBJECTS**


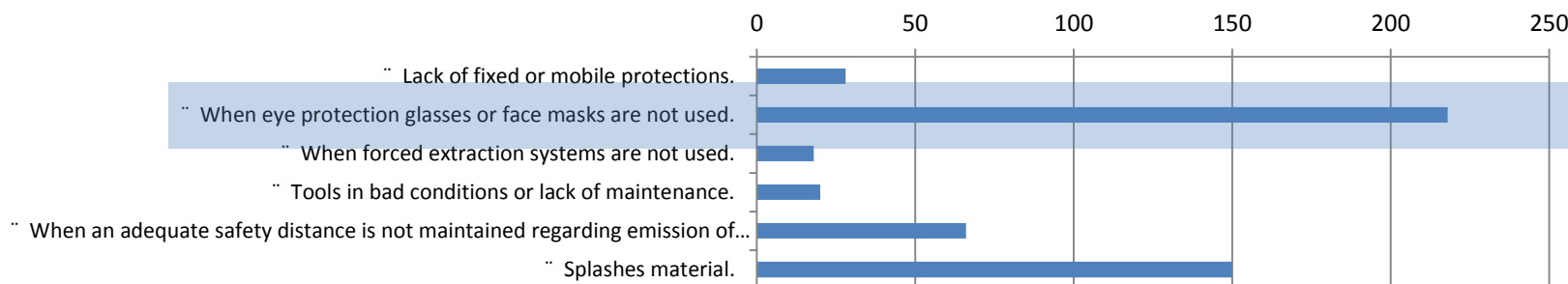
1.09. CUTS AND BLOWS FROM OBJECTS OR TOOLS		
<input type="checkbox"/> Use incorrectly a tool	212	34,64%
<input type="checkbox"/> Use of a tool as a lever.	80	13,07%
<input type="checkbox"/> Lack of maintenance of a tool.	50	8,17%
<input type="checkbox"/> Handle in bad condition.	40	6,54%
<input type="checkbox"/> Unintentionally activation.	127	20,75%
<input type="checkbox"/> Use cutting tool without gloves and other suitable personal protective equipment.	92	15,03%
<input type="checkbox"/> Lack of illumination.	6	0,98%
<input type="checkbox"/> Non suitable storage.	5	0,82%
		100,00%

1.09. CUTS AND BLOWS FROM OBJECTS OR TOOLS



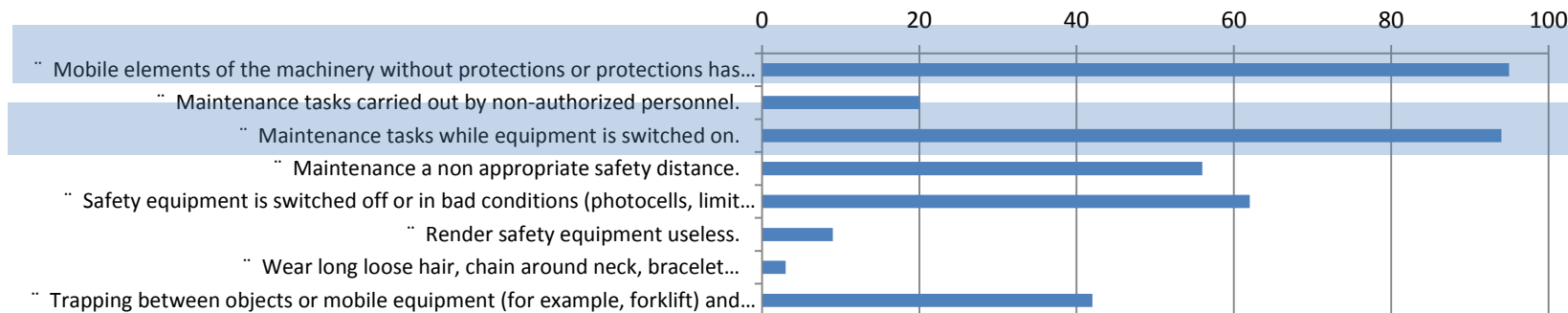
1.10. PROJECTION OF FRAGMENTS OF MATERIAL OR PARTICLES		
<input type="checkbox"/> Lack of fixed or mobile protections.	28	5,60%
<input type="checkbox"/> When eye protection glasses or face masks are not used.	218	43,60%
<input type="checkbox"/> When forced extraction systems are not used.	18	3,60%
<input type="checkbox"/> Tools in bad conditions or lack of maintenance.	20	4,00%
<input type="checkbox"/> When an adequate safety distance is not maintained regarding emission of particles.	66	13,20%
<input type="checkbox"/> Splashes material.	150	30,00%
		100,00%

1.10. PROJECTION OF FRAGMENTS OF MATERIAL OR PARTICLES

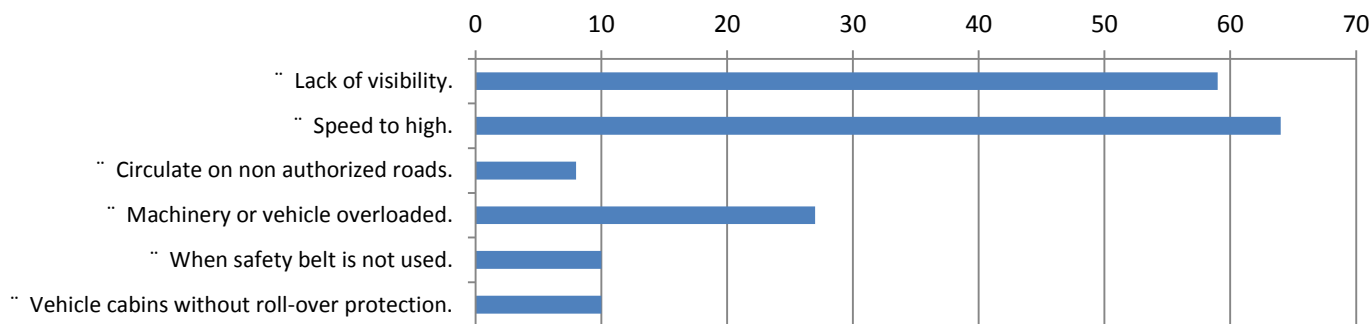


**1.11. TRAPPING IN OR BETWEEN OBJECTS**

<input type="checkbox"/> Mobile elements of the machinery without protections or protections has been switched off.	95	24,93%
<input type="checkbox"/> Maintenance tasks carried out by non-authorized personnel.	20	5,25%
<input type="checkbox"/> Maintenance tasks while equipment is switched on.	94	24,67%
<input type="checkbox"/> Maintenance a non appropriate safety distance.	56	14,70%
<input type="checkbox"/> Safety equipment is switched off or in bad conditions (photocells, limit switches, Polycarbonate visor, etc.).	62	16,27%
<input type="checkbox"/> Render safety equipment useless.	9	2,36%
<input type="checkbox"/> Wear long loose hair, chain around neck, bracelet...	3	0,79%
<input type="checkbox"/> Trapping between objects or mobile equipment (for example, forklift) and an immobile element (for example, a wall).	42	11,02%
		100,00%

**1.11. TRAPPING IN OR BETWEEN OBJECTS**


1.12. TRAPPING UNDER MACHINES OR VEHICLE			
<input type="checkbox"/>	Lack of visibility.	59	33,15%
<input type="checkbox"/>	Speed to high.	64	35,96%
<input type="checkbox"/>	Circulate on non authorized roads.	8	4,49%
<input type="checkbox"/>	Machinery or vehicle overloaded.	27	15,17%
<input type="checkbox"/>	When safety belt is not used.	10	5,62%
<input type="checkbox"/>	Vehicle cabins without roll-over protection.	10	5,62%
			100,00%

**1.12. TRAPPING UNDER MACHINES OR VEHICLE**


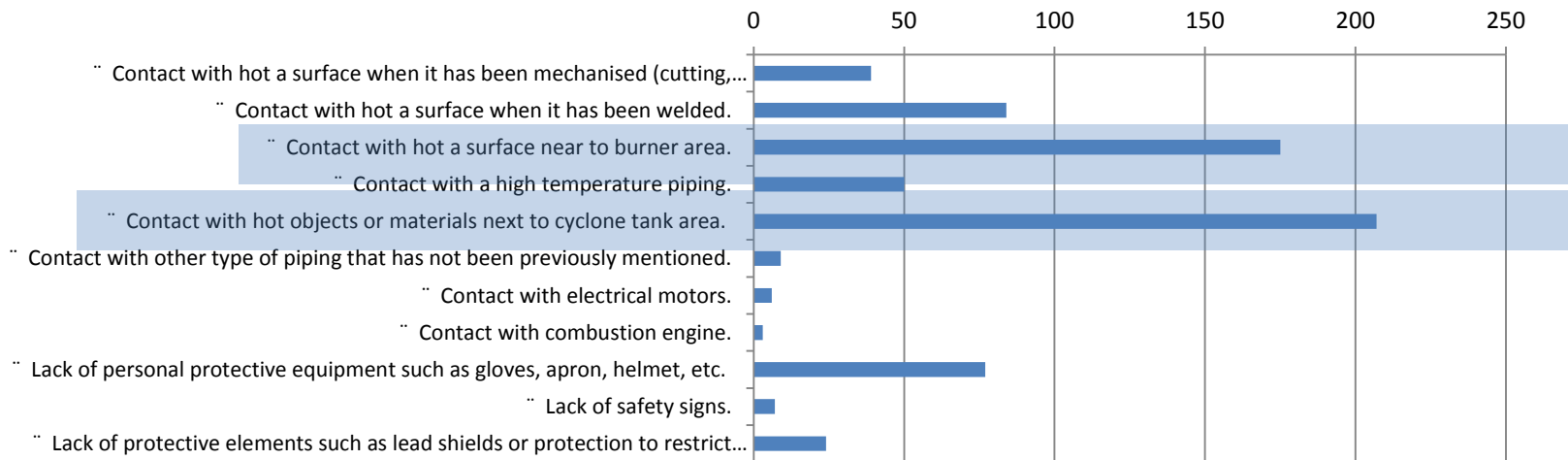


Education and Vocational Training Strategic Partnerships

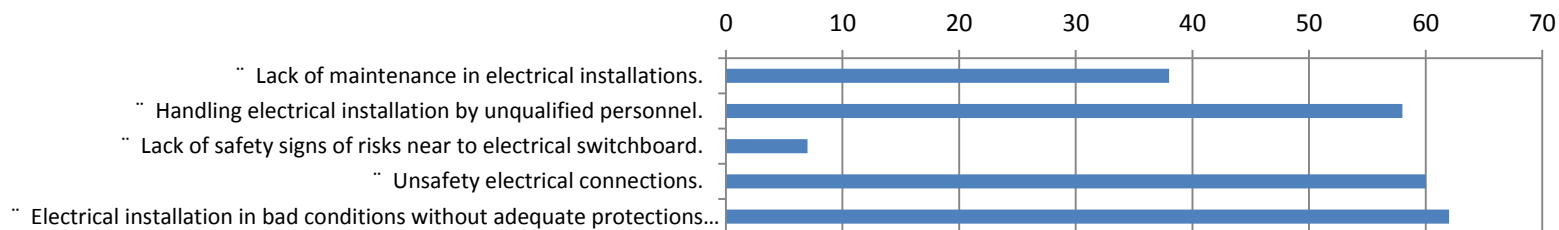
1.13. EXPOSURE TO EXTREME TEMPERATURE

<input type="checkbox"/> Contact with hot a surface when it has been mechanised (cutting, polishing, etc.).	39	5,73%
<input type="checkbox"/> Contact with hot a surface when it has been welded.	84	12,33%
<input type="checkbox"/> Contact with hot a surface near to burner area.	175	25,70%
<input type="checkbox"/> Contact with a high temperature piping.	50	7,34%
<input type="checkbox"/> Contact with hot objects or materials next to cyclone tank area.	207	30,40%
<input type="checkbox"/> Contact with other type of piping that has not been previously mentioned.	9	1,32%
<input type="checkbox"/> Contact with electrical motors.	6	0,88%
<input type="checkbox"/> Contact with combustion engine.	3	0,44%
<input type="checkbox"/> Lack of personal protective equipment such as gloves, apron, helmet, etc.	77	11,31%
<input type="checkbox"/> Lack of safety signs.	7	1,03%
<input type="checkbox"/> Lack of protective elements such as lead shields or protection to restrict access.	24	3,52%
		100,00%

1.13. EXPOSURE TO EXTREME TEMPERATURE

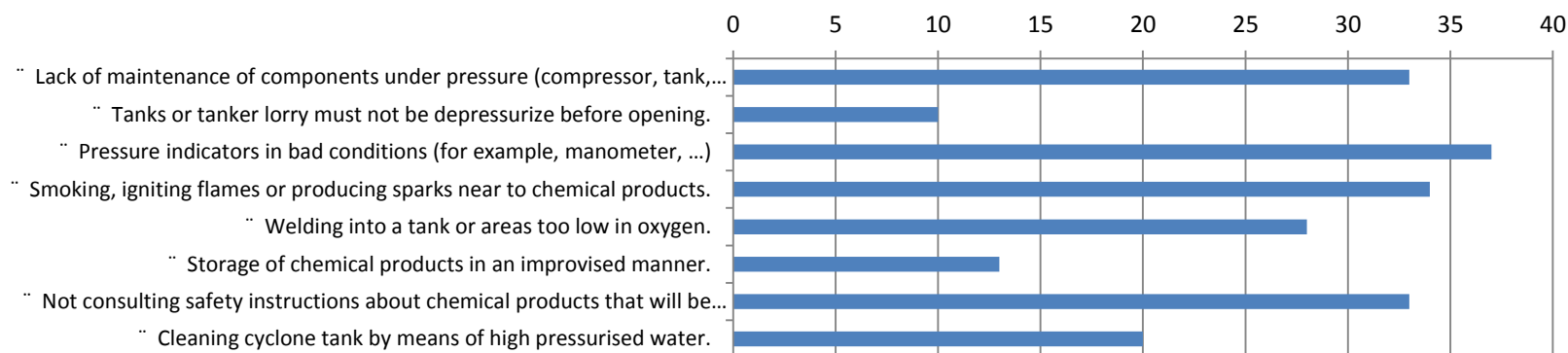


1.14. ELECTRIC SHOCK		
<input type="checkbox"/>	Lack of maintenance in electrical installations.	38 16,89%
<input type="checkbox"/>	Handling electrical installation by unqualified personnel.	58 25,78%
<input type="checkbox"/>	Lack of safety signs of risks near to electrical switchboard.	7 3,11%
<input type="checkbox"/>	Unsafty electrical connections.	60 26,67%
<input type="checkbox"/>	Electrical installation in bad conditions without adequate protections (differential circuit breaker, ground connection, etc.).	62 27,56%
		100,00%

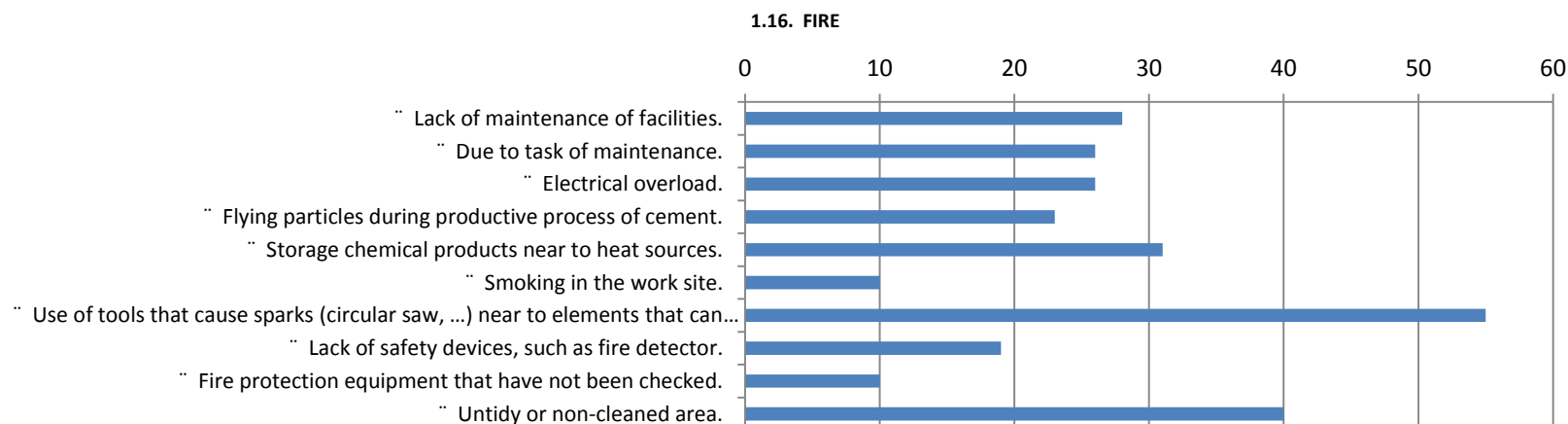
**1.14. ELECTRIC SHOCK**


1.15. EXPLOSION			
<input type="checkbox"/>	Lack of maintenance of components under pressure (compressor, tank, piping, etc.).	33	15,87%
<input type="checkbox"/>	Tanks or tanker lorry must not be depressurize before opening.	10	4,81%
<input type="checkbox"/>	Pressure indicators in bad conditions (for example, manometer, ...)	37	17,79%
<input type="checkbox"/>	Smoking, igniting flames or producing sparks near to chemical products.	34	16,35%
<input type="checkbox"/>	Welding into a tank or areas too low in oxygen.	28	13,46%
<input type="checkbox"/>	Storage of chemical products in an improvised manner.	13	6,25%
<input type="checkbox"/>	Not consulting safety instructions about chemical products that will be handled.	33	15,87%
<input type="checkbox"/>	Cleaning cyclone tank by means of high pressurised water.	20	9,62%
			100,00%

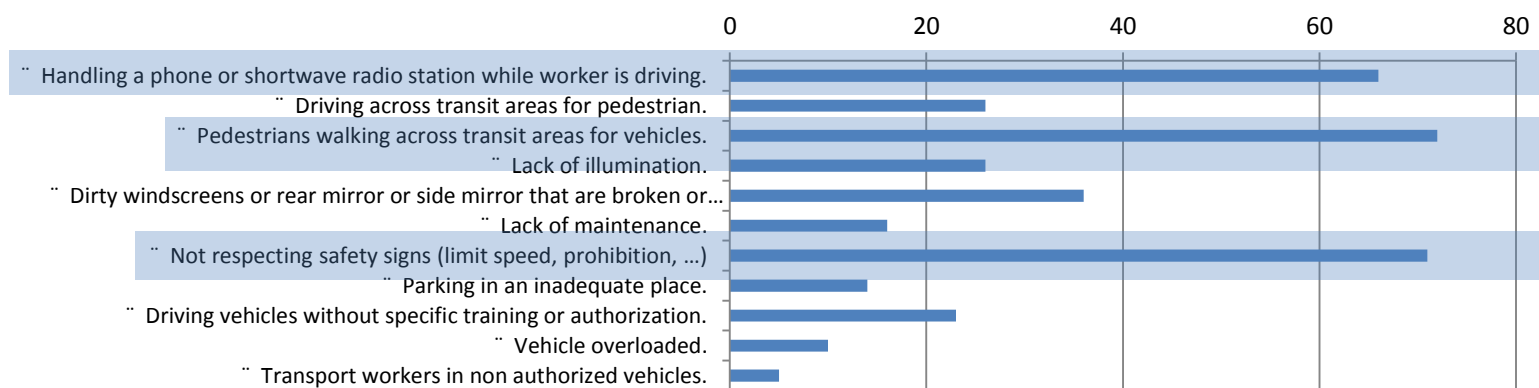
1.15. EXPLOSION



1.16. FIRE			
<input type="checkbox"/>	Lack of maintenance of facilities.	28	10,45%
<input type="checkbox"/>	Due to task of maintenance.	26	9,70%
<input type="checkbox"/>	Electrical overload.	26	9,70%
<input type="checkbox"/>	Flying particles during productive process of cement.	23	8,58%
<input type="checkbox"/>	Storage chemical products near to heat sources.	31	11,57%
<input type="checkbox"/>	Smoking in the work site.	10	3,73%
<input type="checkbox"/>	Use of tools that cause sparks (circular saw, ...) near to elements that can burn (plastic, cardboard, ...)	55	20,52%
<input type="checkbox"/>	Lack of safety devices, such as fire detector.	19	7,09%
<input type="checkbox"/>	Fire protection equipment that have not been checked.	10	3,73%
<input type="checkbox"/>	Untidy or non-cleaned area.	40	14,93%
			100,00%



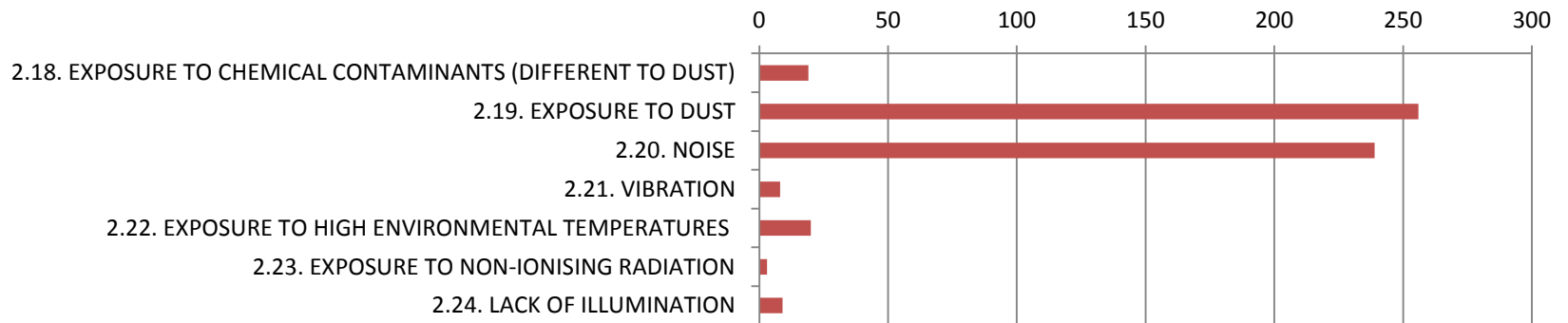
1.17. VEHICLE ACCIDENT		
<input type="checkbox"/>	Handling a phone or shortwave radio station while worker is driving.	66 18,08%
<input type="checkbox"/>	Driving across transit areas for pedestrian.	26 7,12%
<input type="checkbox"/>	Pedestrians walking across transit areas for vehicles.	72 19,73%
<input type="checkbox"/>	Lack of illumination.	26 7,12%
<input type="checkbox"/>	Dirty windscreens or rear mirror or side mirror that are broken or wrongly oriented.	36 9,86%
<input type="checkbox"/>	Lack of maintenance.	16 4,38%
<input type="checkbox"/>	Not respecting safety signs (limit speed, prohibition, ...)	71 19,45%
<input type="checkbox"/>	Parking in an inadequate place.	14 3,84%
<input type="checkbox"/>	Driving vehicles without specific training or authorization.	23 6,30%
<input type="checkbox"/>	Vehicle overloaded.	10 2,74%
<input type="checkbox"/>	Transport workers in non authorized vehicles.	5 1,37%
		100,00%

**1.17. VEHICLE ACCIDENT**


**GROUP 2 | Risk of industrial hygiene**

2.18. EXPOSURE TO CHEMICAL CONTAMINANTS (DIFFERENT TO DUST)	19	3,43%
2.19. EXPOSURE TO DUST	256	46,21%
2.20. NOISE	239	43,14%
2.21. VIBRATION	8	1,44%
2.22. EXPOSURE TO HIGH ENVIRONMENTAL TEMPERATURES	20	3,61%
2.23. EXPOSURE TO NON-IONISING RADIATION	3	0,54%
2.24. LACK OF ILLUMINATION	9	1,62%
		100,00%

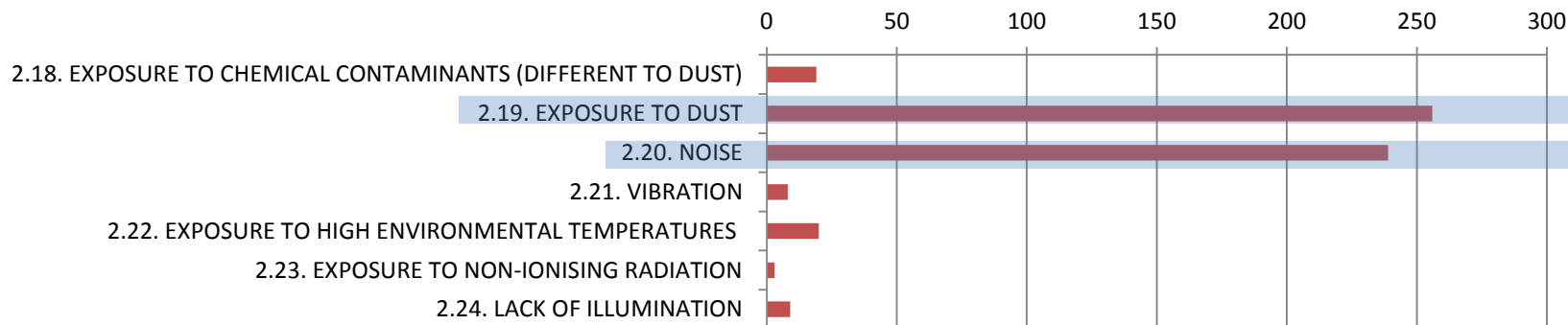
**GROUP 2 | Risk of industrial hygiene**





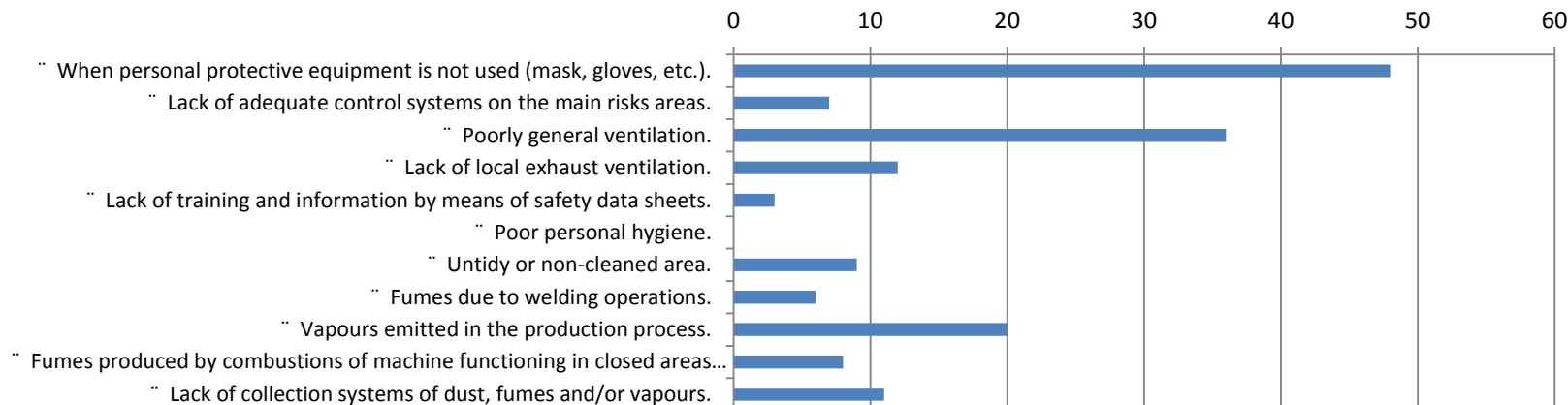
**GROUP 2 | Risk of industrial hygiene**

2.18. EXPOSURE TO CHEMICAL CONTAMINANTS (DIFFERENT TO DUST)	19	3,43%
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**GROUP 2 | Risk of industrial hygiene**


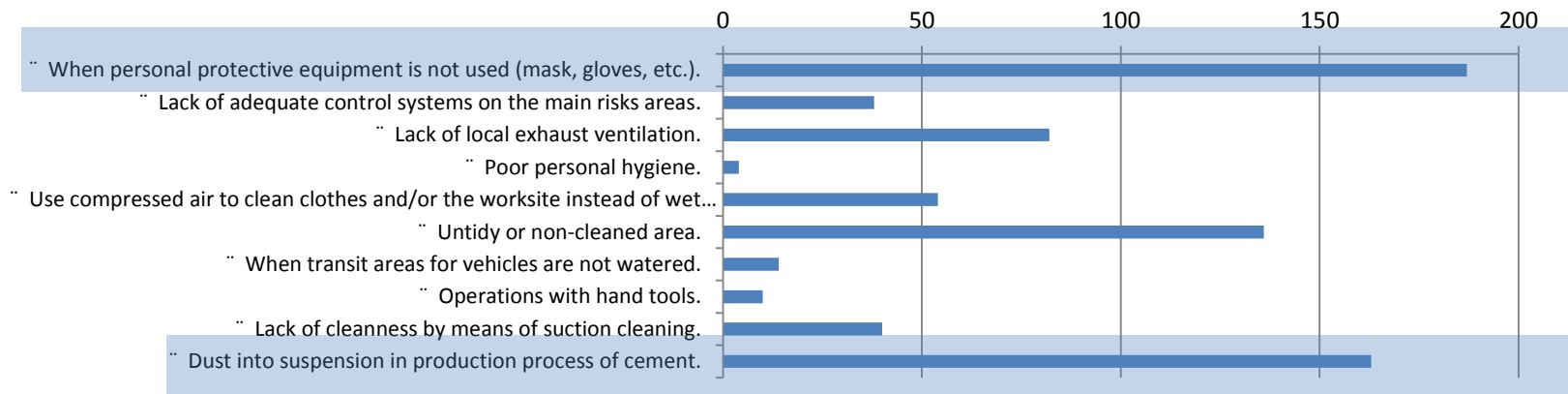
2.18. EXPOSURE TO CHEMICAL CONTAMINANTS (DIFFERENT TO DUST)			
<input type="checkbox"/>	When personal protective equipment is not used (mask, gloves, etc.).	48	30,00%
<input type="checkbox"/>	Lack of adequate control systems on the main risks areas.	7	4,38%
<input type="checkbox"/>	Poorly general ventilation.	36	22,50%
<input type="checkbox"/>	Lack of local exhaust ventilation.	12	7,50%
<input type="checkbox"/>	Lack of training and information by means of safety data sheets.	3	1,88%
<input type="checkbox"/>	Poor personal hygiene.	0	0,00%
<input type="checkbox"/>	Untidy or non-cleaned area.	9	5,63%
<input type="checkbox"/>	Fumes due to welding operations.	6	3,75%
<input type="checkbox"/>	Vapours emitted in the production process.	20	12,50%
<input type="checkbox"/>	Fumes produced by combustions of machine functioning in closed areas (mechanical loader, fork-lift truck).	8	5,00%
<input type="checkbox"/>	Lack of collection systems of dust, fumes and/or vapours.	11	6,88%
			100,00%

2.18. EXPOSURE TO CHEMICAL CONTAMINANTS (DIFFERENT TO DUST)



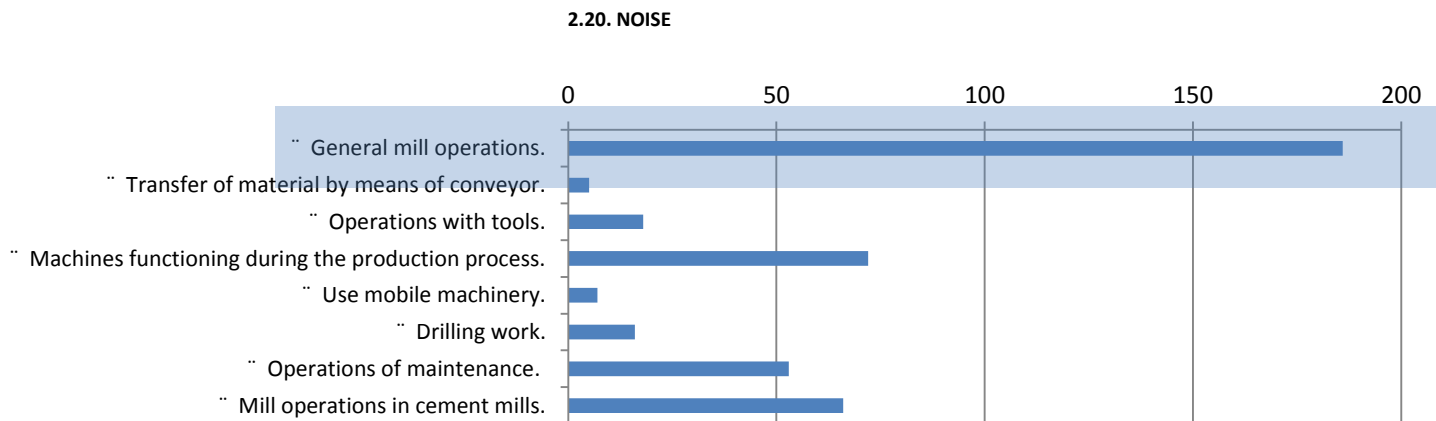
2.19. EXPOSURE TO DUST		
<input type="checkbox"/> When personal protective equipment is not used (mask, gloves, etc.).	187	25,69%
<input type="checkbox"/> Lack of adequate control systems on the main risks areas.	38	5,22%
<input type="checkbox"/> Lack of local exhaust ventilation.	82	11,26%
<input type="checkbox"/> Poor personal hygiene.	4	0,55%
<input type="checkbox"/> Use compressed air to clean clothes and/or the worksite instead of wet or suction systems.	54	7,42%
<input type="checkbox"/> Untidy or non-cleaned area.	136	18,68%
<input type="checkbox"/> When transit areas for vehicles are not watered.	14	1,92%
<input type="checkbox"/> Operations with hand tools.	10	1,37%
<input type="checkbox"/> Lack of cleanness by means of suction cleaning.	40	5,49%
<input type="checkbox"/> Dust into suspension in production process of cement.	163	22,39%
		100,00%

2.19. EXPOSURE TO DUST

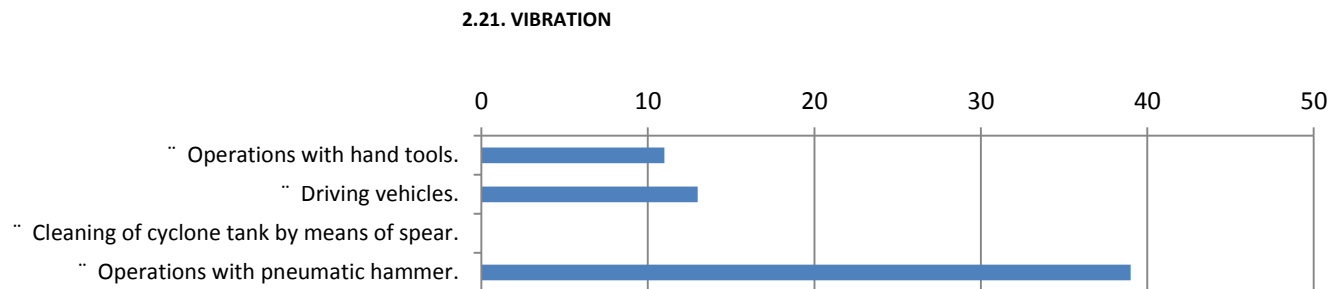


**Education and Vocational Training Strategic Partnerships**

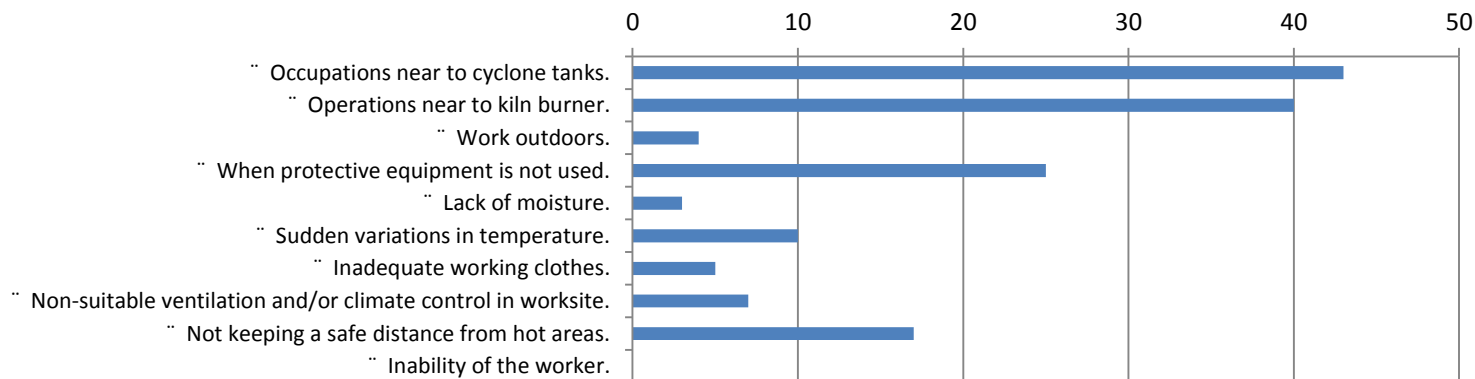
2.20. NOISE			
<input type="checkbox"/>	General mill operations.	186	43,97%
<input type="checkbox"/>	Transfer of material by means of conveyor.	5	1,18%
<input type="checkbox"/>	Operations with tools.	18	4,26%
<input type="checkbox"/>	Machines functioning during the production process.	72	17,02%
<input type="checkbox"/>	Use mobile machinery.	7	1,65%
<input type="checkbox"/>	Drilling work.	16	3,78%
<input type="checkbox"/>	Operations of maintenance.	53	12,53%
<input type="checkbox"/>	Mill operations in cement mills.	66	15,60%
			100,00%



2.21. VIBRATION			
<input type="checkbox"/>	Operations with hand tools.	11	17,46%
<input type="checkbox"/>	Driving vehicles.	13	20,63%
<input type="checkbox"/>	Cleaning of cyclone tank by means of spear.	0	0,00%
<input type="checkbox"/>	Operations with pneumatic hammer.	39	61,90%
			100,00%

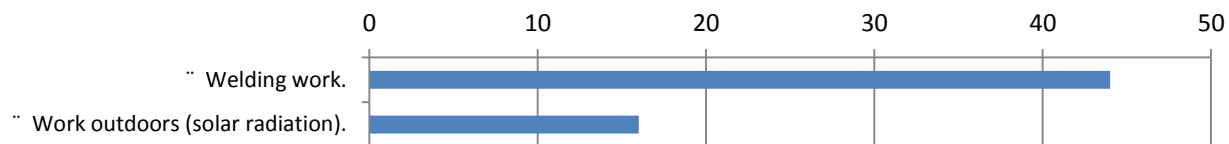


2.22. EXPOSURE TO HIGH ENVIRONMENTAL TEMPERATURES			
<input type="checkbox"/>	Occupations near to cyclone tanks.	43	27,92%
<input type="checkbox"/>	Operations near to kiln burner.	40	25,97%
<input type="checkbox"/>	Work outdoors.	4	2,60%
<input type="checkbox"/>	When protective equipment is not used.	25	16,23%
<input type="checkbox"/>	Lack of moisture.	3	1,95%
<input type="checkbox"/>	Sudden variations in temperature.	10	6,49%
<input type="checkbox"/>	Inadequate working clothes.	5	3,25%
<input type="checkbox"/>	Non-suitable ventilation and/or climate control in worksite.	7	4,55%
<input type="checkbox"/>	Not keeping a safe distance from hot areas.	17	11,04%
<input type="checkbox"/>	Inability of the worker.	0	0,00%
			100,00%

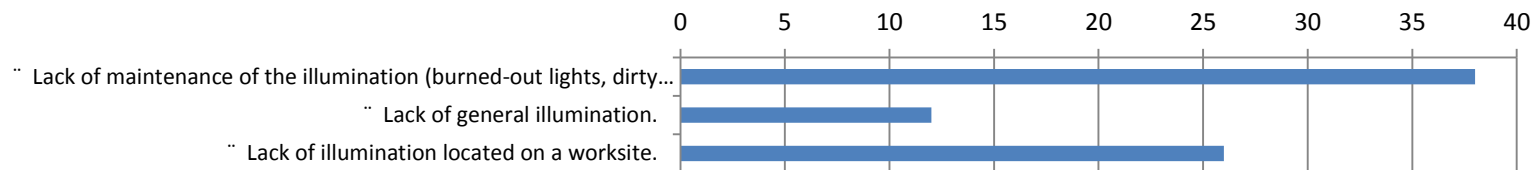
**2.22. EXPOSURE TO HIGH ENVIRONMENTAL TEMPERATURES**




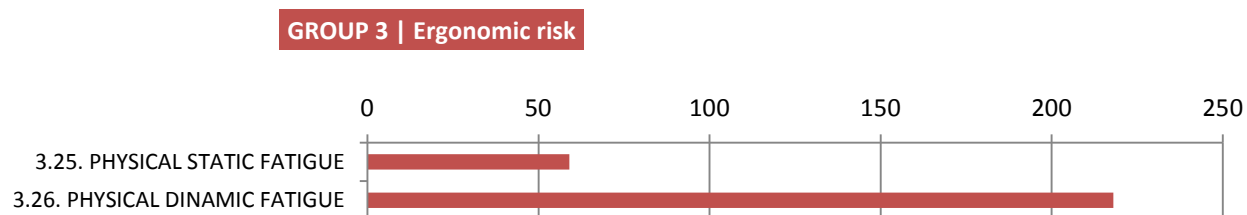
2.23. EXPOSURE TO NON-IONISING RADIATION		
<input type="checkbox"/>	Welding work.	44 73,33%
<input type="checkbox"/>	Work outdoors (solar radiation).	16 26,67%
		100,00%

**2.23. EXPOSURE TO NON-IONISING RADIATION**


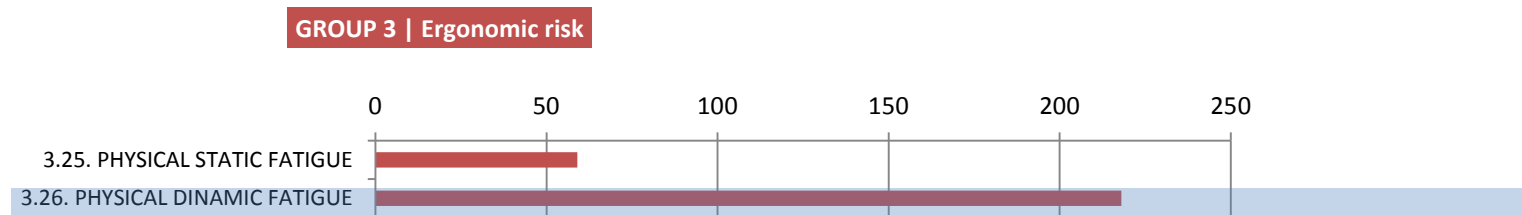
2.24. LACK OF ILLUMINATION			
<input type="checkbox"/>	Lack of maintenance of the illumination (burned-out lights, dirty diffusers, etc.).	38	50,00%
<input type="checkbox"/>	Lack of general illumination.	12	15,79%
<input type="checkbox"/>	Lack of illumination located on a worksite.	26	34,21%
			100,00%

**2.24. LACK OF ILLUMINATION**


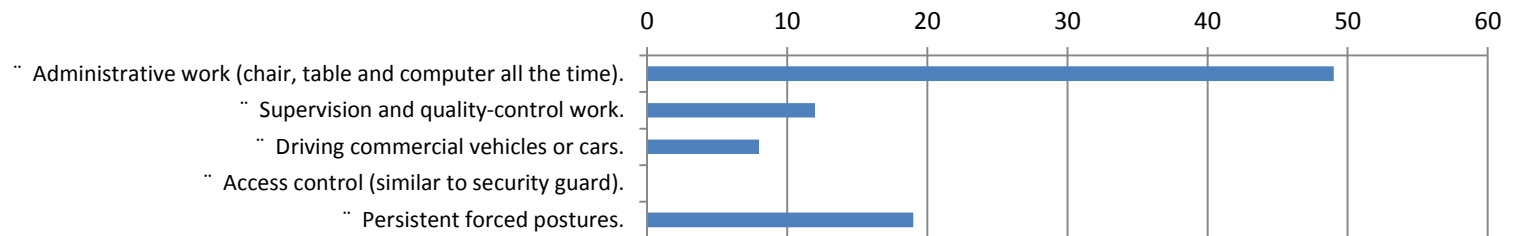
<b>GROUP 3   Ergonomic risk</b>			
	3.25. PHYSICAL STATIC FATIGUE	59	21,30%
	3.26. PHYSICAL DINAMIC FATIGUE	218	78,70%
			100,00%



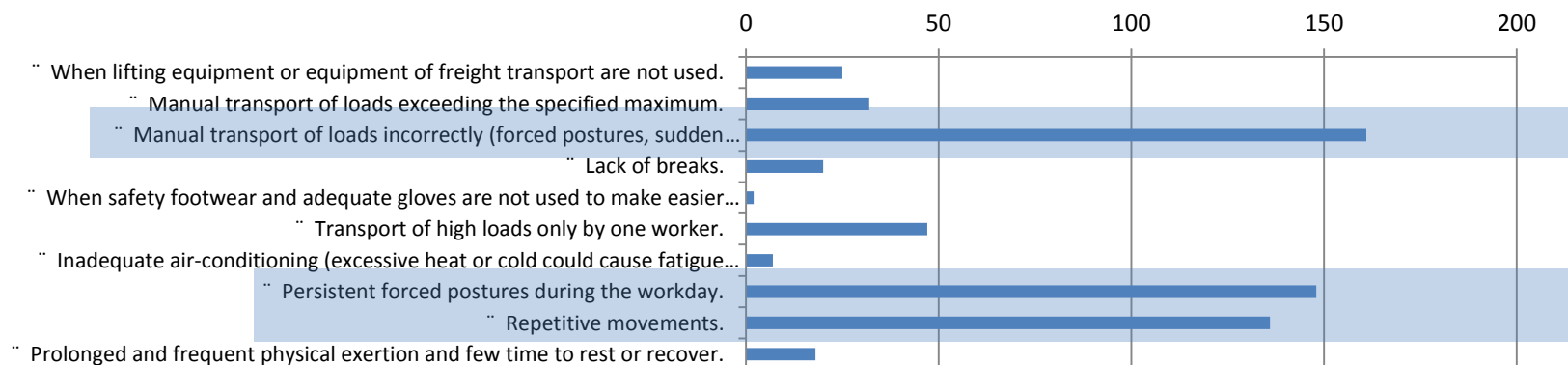
GROUP 3   Ergonomic risk		
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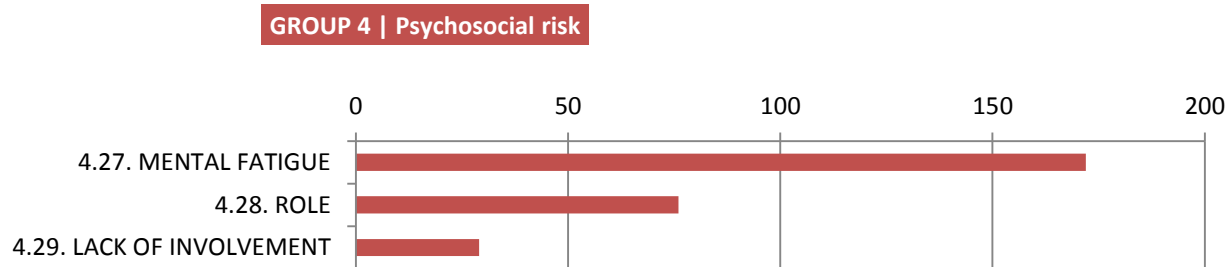
3.25. PHYSICAL STATIC FATIGUE		
<input type="checkbox"/> Administrative work (chair, table and computer all the time).	49	55,68%
<input type="checkbox"/> Supervision and quality-control work.	12	13,64%
<input type="checkbox"/> Driving commercial vehicles or cars.	8	9,09%
<input type="checkbox"/> Access control (similar to security guard).	0	0,00%
<input type="checkbox"/> Persistent forced postures.	19	21,59%
		100,00%

**3.25. PHYSICAL STATIC FATIGUE**


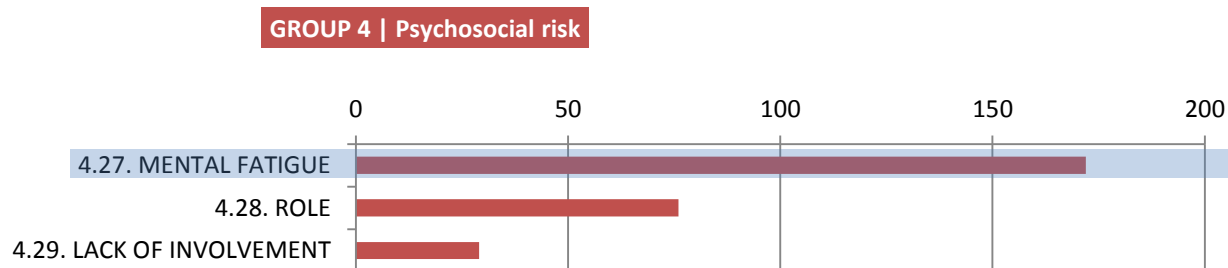
3.26. PHYSICAL DINAMIC FATIGUE		
<input type="checkbox"/> When lifting equipment or equipment of freight transport are not used.	25	4,19%
<input type="checkbox"/> Manual transport of loads exceeding the specified maximum.	32	5,37%
<input type="checkbox"/> Manual transport of loads incorrectly (forced postures, sudden movements...).	161	27,01%
<input type="checkbox"/> Lack of breaks.	20	3,36%
<input type="checkbox"/> When safety footwear and adequate gloves are not used to make easier the handling.	2	0,34%
<input type="checkbox"/> Transport of high loads only by one worker.	47	7,89%
<input type="checkbox"/> Inadequate air-conditioning (excessive heat or cold could cause fatigue and somnolence).	7	1,17%
<input type="checkbox"/> Persistent forced postures during the workday.	148	24,83%
<input type="checkbox"/> Repetitive movements.	136	22,82%
<input type="checkbox"/> Prolonged and frequent physical exertion and few time to rest or recover.	18	3,02%
		100,00%

**3.26. PHYSICAL DINAMIC FATIGUE**


<b>GROUP 4   Psychosocial risk</b>			
4.27. MENTAL FATIGUE		172	62,09%
4.28. ROLE		76	27,44%
4.29. LACK OF INVOLVEMENT		29	10,47%
			100,00%



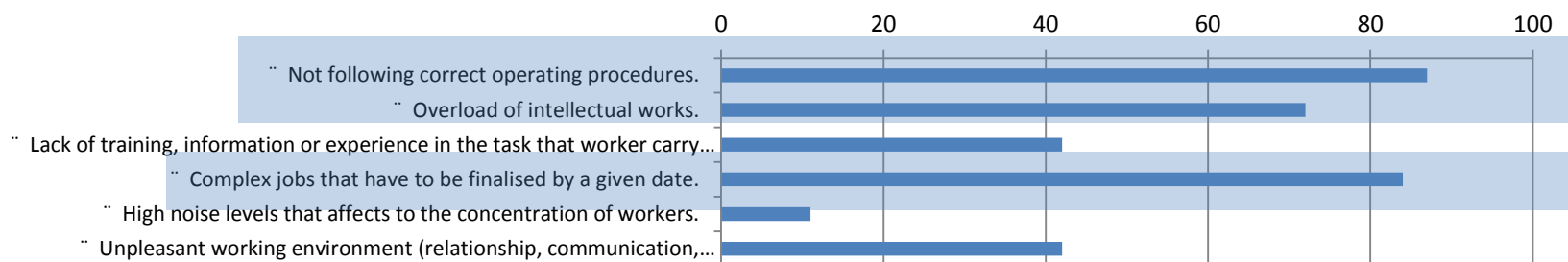
GROUP 4   Psychosocial risk			
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			100,00%



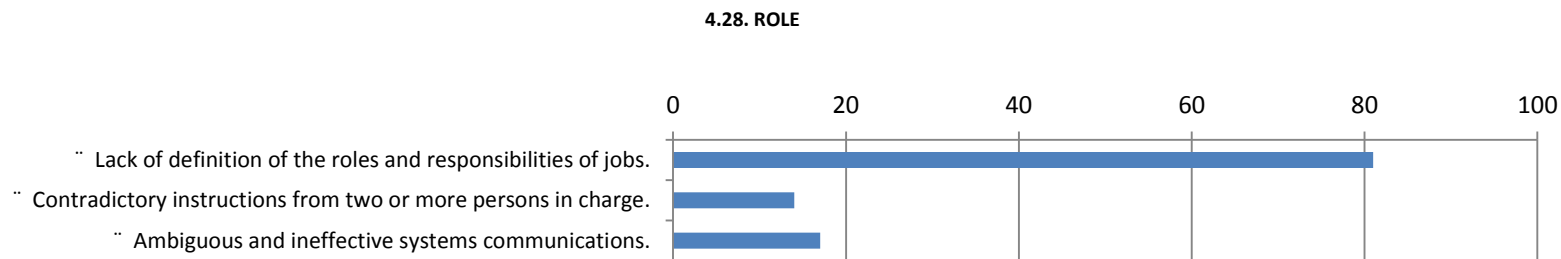


**4.27. MENTAL FATIGUE**

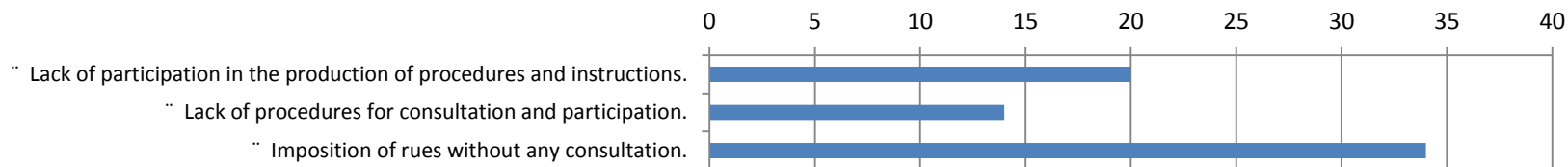
<input type="checkbox"/> Not following correct operating procedures.	87	25,74%
<input type="checkbox"/> Overload of intellectual works.	72	21,30%
<input type="checkbox"/> Lack of training, information or experience in the task that worker carry out.	42	12,43%
<input type="checkbox"/> Complex jobs that have to be finalised by a given date.	84	24,85%
<input type="checkbox"/> High noise levels that affects to the concentration of workers.	11	3,25%
<input type="checkbox"/> Unpleasant working environment (relationship, communication, support, etc.).	42	12,43%
		100,00%

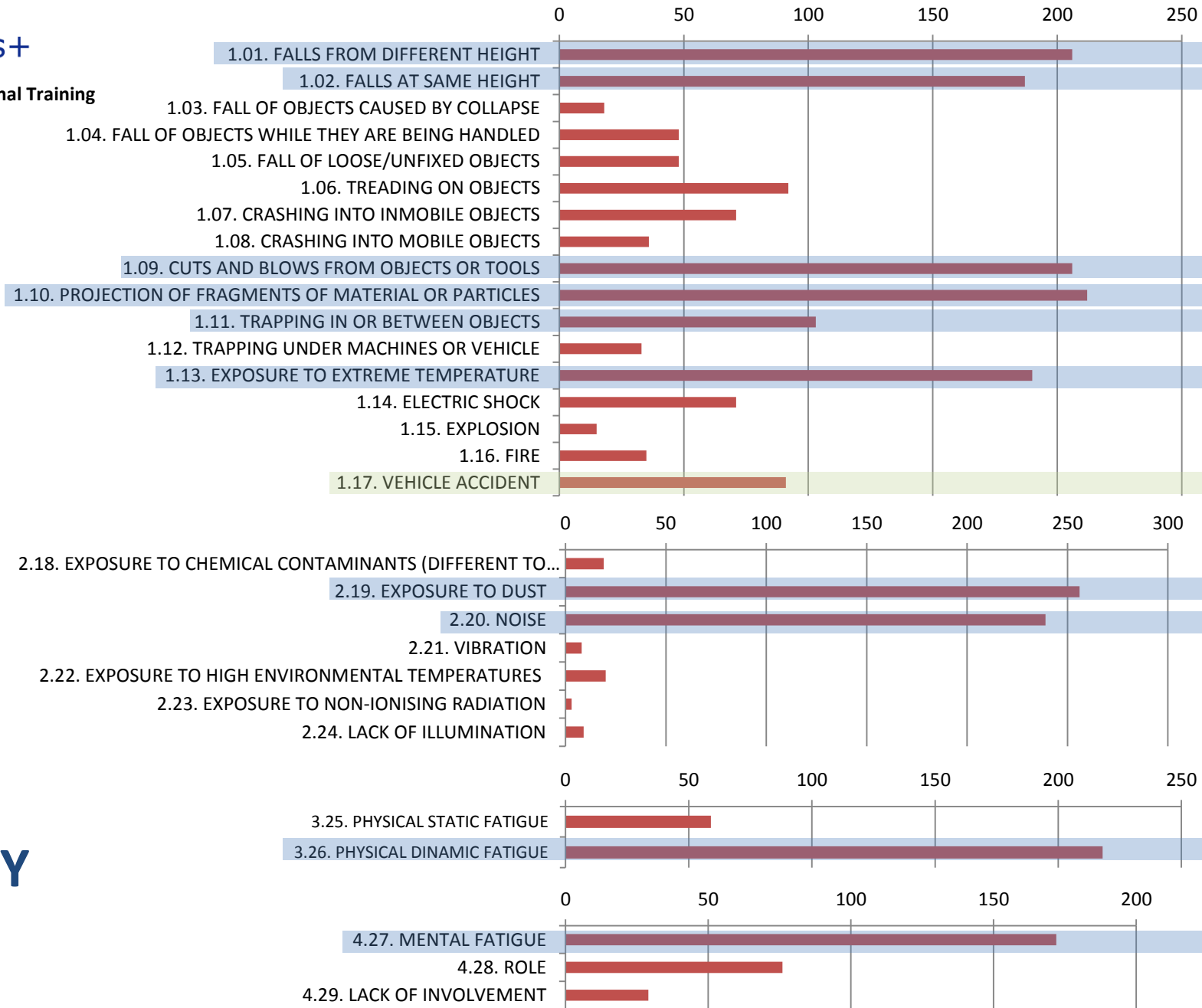
**4.27. MENTAL FATIGUE**


4.28. ROLE			
<input type="checkbox"/>	Lack of definition of the roles and responsibilities of jobs.	81	72,32%
<input type="checkbox"/>	Contradictory instructions from two or more persons in charge.	14	12,50%
<input type="checkbox"/>	Ambiguous and ineffective systems communications.	17	15,18%
			100,00%



4.29. LACK OF INVOLVEMENT			
<input type="checkbox"/>	Lack of participation in the production of procedures and instructions.	20	29,41%
<input type="checkbox"/>	Lack of procedures for consultation and participation.	14	20,59%
<input type="checkbox"/>	Imposition of rules without any consultation.	34	50,00%
			100,00%

**4.29. LACK OF INVOLVEMENT**




# SUMMARY