

LAMPIRAN
ERGONOMIC CHECKPOINTS -INTERNATIONAL LABOUR
ORGANIZATION (ILO)

<i>Ergonomic Checkpoints</i>				
<i>Material Storage and Handling</i>				
No	Checkpoint	Do you propose action?		Keterangan
		Yes	No	
1	Clear and mark transport routes			
2	Keep aisles and corridors wide enough to allow two-way transport			
3	Make the surface of transport routes even, not slippery, and without obstacles			
4	Provide ramps with a small inclination instead of small stairways or sudden height differences within the workplace			
5	Improve the layout of the work area so that the need to move materials is minimized			
6	Use carts, hand-trucks and other wheeled devices, or rollers, when moving materials			
7	Use mobile storage racks to avoid unnecessary loading and unloading			
8	Use multi-level shelves or racks near the work area in order to minimize manual transport of materials			
9	Use mechanical devices for lifting, lowering and moving heavy materials			
10	Reduce manual handling of materials by using conveyers, hoists and other mechanical means of transport			
11	Instead of carrying heavy weights, divide them into smaller lightweight packages, containers or trays			
12	Provide handholds, grips or good holding points for all packages and containers			
13	Move materials horizontally at the same working height.			

14	<i>Eliminate tasks that require bending or twisting while handling materials</i>			
15	<i>Keep objects close to the body when manually handling materials</i>			
16	<i>Combine heavy lifting with physically lighter tasks to avoid injury and fatigue and to increase efficiency</i>			
17	<i>Provide conveniently placed waste containers</i>			
<i>Hand tools</i>				
18	<i>Select tools designed for the specific task requirements</i>			
19	<i>Provide safe power tools and make sure that safety guards are used</i>			
20	<i>Use hanging tools for operations repeated in the same place</i>			
21	<i>Use vices and clamps to hold materials or work items</i>			
22	<i>Provide hand support when using precision tools</i>			
23	<i>Minimize the weight of tools (except for striking tools)</i>			
24	<i>For Hand tools, provide the tool with a grip of the proper thickness, length, shape and size for easy handling</i>			
25	<i>Provide Hand tools with grips that have adequate friction or with guards or stoppers to avoid slips and pinches</i>			
26	<i>Provide tools with proper insulation to avoid burns and electric shocks</i>			
27	<i>Minimize vibration and noise of Hand tools</i>			
28	<i>Provide a "home" for each tool</i>			
29	<i>Inspect and maintain Hand tools regularly</i>			
30	<i>Train workers before allowing them to use power tools</i>			
31	<i>Provide enough space for stable postures and stable footing during power tool operation</i>			
<i>Machine Safety</i>				
32	<i>Design controls to prevent unintentional operation</i>			
33	<i>Make emergency controls clearly visible and easily accessible from the natural position of the operator</i>			
34	<i>Make different controls easy to distinguish from each other</i>			

35	<i>Make sure that the worker can see and reach all controls comfortably</i>			
36	<i>Locate controls in sequence of operation</i>			
37	<i>Use natural expectations for control movements</i>			
38	<i>Limit the number of foot pedals and, if used, make them easy to operate</i>			
39	<i>Make displays and signals easy to distinguish from each other and easy to read</i>			
40	<i>Use markings or colours on displays to help workers understand what to do</i>			
41	<i>Use symbols only if they are easily understood by local people</i>			
42	<i>Make labels and signs easy to see, easy to read and easy to understand</i>			
43	<i>Use warning signs that workers understand easily and correctly</i>			
44	<i>Use jigs and fixtures to make machine operation stable, safe and efficient</i>			
45	<i>Purchase machines that meet safety criteria</i>			
46	<i>Use feeding and ejection devices to keep the hands away from dangerous parts of machinery</i>			
47	<i>Use properly fixed guards or barriers to prevent contact with moving parts of machines</i>			
48	<i>Use interlock barriers to make it impossible for workers to reach dangerous points when the machine is in operation.</i>			
49	<i>Establish safe procedures for forklift driving by modifying the workplace and providing adequate training.</i>			
50	<i>Inspect, clean and maintain machines regularly, including electric wiring.</i>			
<i>Workstation Design</i>				
51	<i>Adjust the working height for each worker at elbow level or slightly below it</i>			
52	<i>Make sure that the workplace accommodates the needs of smaller workers</i>			

53	<i>Make sure that the workplace accommodates the needs of taller workers</i>			
54	<i>Place frequently used materials, tools and controls within easy reach</i>			
55	<i>Provide a stable multi-purpose work surface at each workstation</i>			
56	<i>Make sure that workers can stand naturally, with weight on both feet, and perform work close to and in front of the body</i>			
57	<i>Allow workers to alternate standing and sitting at work as much as possible</i>			
58	<i>Provide standing workers with chairs or stools for occasional sitting</i>			
59	<i>Provide sitting workers with good adjustable chairs with a backrest</i>			
60	<i>Use height-adjusted computer workstations and arrange related computer peripherals within easy reach</i>			
61	<i>Provide eye examinations and proper glasses for workers using a visual display unit (VDU) regularly</i>			
62	<i>Provide a sound and stable footing and sufficient guarding arrangements for work in high places</i>			
63	<i>Increase safety and comfort of driving cabins and seats of vehicles used at the workplace</i>			
<i>Lighting</i>				
64	<i>Increase the use of daylight and provide an outside view</i>			
65	<i>Use light colours for walls and ceilings when more light is needed</i>			
66	<i>Light up corridors, staircases, ramps and other areas where people may walk or work</i>			
67	<i>Light up the work area evenly to minimize changes in brightness</i>			
68	<i>Provide sufficient lighting for workers so that they can work efficiently and comfortably at all times</i>			
69	<i>Provide local lights for precision or inspection work</i>			
70	<i>Relocate light sources or provide shields to eliminate direct and indirect glare</i>			

71	<i>Choose an appropriate visual task background for tasks requiring close, continuous attention</i>			
72	<i>Clean windows and maintain light sources</i>			
<i>Premises</i>				
73	<i>Protect workers from excessive heat</i>			
74	<i>Protect workers from cold work environments.</i>			
75	<i>Isolate or insulate sources of heat or cold</i>			
76	<i>Install effective local exhaust systems that allow efficient and safe work</i>			
77	<i>Increase the use of natural ventilation when needed to improve the indoor climate</i>			
78	<i>Use air-conditioning systems to provide an indoor climate conducive to the health and comfort of people</i>			
79	<i>Improve and maintain ventilation systems to ensure good workplace air quality</i>			
80	<i>Keep the office work area in good order to increase the efficiency and comfort of people using the area</i>			
81	<i>Provide enough fire extinguishers within easy reach and be sure that workers know how to use them</i>			
82	<i>Recycle wastes to make better use of resources and protect the environment</i>			
83	<i>Mark escape routes and keep them clear of obstacles</i>			
84	<i>Establish evacuation plans to ensure safe and rapid egress from the worksite</i>			
<i>Hazardous substances and agents</i>				
85	<i>Isolate or cover noisy machines or parts of machines</i>			
86	<i>Maintain tools and machines regularly in order to reduce noise</i>			
87	<i>Make sure that noise does not interfere with verbal communication and auditory signals</i>			
88	<i>Reduce vibration affecting workers in order to improve safety, health and work efficiency</i>			
89	<i>Choose electric hand-held equipment that is well insulated against electric shock and heat</i>			
90	<i>Ensure safe wiring connections for equipment and lights</i>			

91	<i>Label and store properly containers of hazardous chemicals to communicate warnings and to ensure safe handling</i>			
92	<i>Protect workers from chemical risks so that they can perform their work safely and efficiently</i>			
93	<i>Identify confined spaces requiring entry permits and take adequate control measures to render the space safe for entry and work</i>			
94	<i>Protect workers from biological risks by minimizing exposure to biological agents and isolating potentially contaminated areas</i>			
<i>Welfare Facilities</i>				
95	<i>Provide and maintain good changing, washing and sanitary facilities to ensure good hygiene and tidiness</i>			
96	<i>Provide drinking facilities and hygienic eating areas to ensure good performance and well-being</i>			
97	<i>Provide rest facilities for recovery from fatigue</i>			
98	<i>Provide easy access to first-aid equipment and primary health-care facilities at the workplace</i>			
99	<i>Provide a place for workers' meetings and training</i>			
100	<i>Clearly mark areas requiring the use of personal protective equipment</i>			
101	<i>Provide personal protective equipment that gives adequate protection</i>			
102	<i>Ensure regular use of personal protective equipment by proper instructions, adaptation trials and training.</i>			
103	<i>Make sure that everyone uses personal protective equipment where it is needed</i>			
104	<i>Make sure that personal protective equipment is acceptable to the workers and that it is cleaned and maintained</i>			
105	<i>Provide proper storage for personal protective equipment</i>			
<i>Work Organization</i>				
106	<i>Solve day-to-day work problems by involving groups of workers</i>			

107	<i>Consult workers on improving working-time arrangements</i>			
108	<i>Involve workers in the improved design of their own workstations</i>			
109	<i>Consult workers when there are changes in production and when improvements are needed for safer, easier and more efficient work</i>			
110	<i>Inform and reward workers about the results of their work.</i>			
111	<i>Train workers to take responsibility and give them the means to make improvements in their jobs</i>			
112	<i>Train workers for safe and efficient operation</i>			
113	<i>Provide up-to-date training for workers using computer systems</i>			
114	<i>Provide opportunities for easy communication and mutual support at the workplace</i>			
115	<i>Consider workers' skills and preferences in assigning people to jobs and providing them with opportunities to learn new skills</i>			
116	<i>Set up work groups, each of which collectively carries out work and is responsible for its results</i>			
117	<i>Improve jobs that are difficult and disliked in order to increase productivity in the long run</i>			
118	<i>Combine tasks to make the work more interesting and varied</i>			
119	<i>Set up a small stock of unfinished products (buffer stock) between different workstations</i>			
120	<i>Assign responsibility for day-to-day cleaning and housekeeping</i>			
121	<i>Provide short, frequent pauses during continuous precision or computer work to increase productivity and reduce fatigue</i>			
122	<i>Provide opportunities for physical exercise for workers</i>			
123	<i>Encourage full participation by women and men workers in finding and implementing work improvements</i>			

124	<i>Assist migrant workers to perform their jobs safely and efficiently</i>			
125	<i>Assign appropriate workload, facilitate teamwork and provide adequate training for young workers</i>			
126	<i>Adapt facilities and equipment to workers with disabilities so they can do their jobs safely and efficiently</i>			
127	<i>Give due attention to the safety and health of pregnant and nursing women</i>			
128	<i>Take measures so that older workers can perform work safely and efficiently</i>			
129	<i>Adjust the workplace to the culture and related preferences of workers by taking a user-centred approach</i>			
130	<i>Involve both managers and workers in conducting ergonomics-related risk assessment as part of occupational safety and health management systems</i>			
131	<i>Establish emergency plans to ensure correct emergency operation, easy access to facilities and rapid evacuation</i>			
132	<i>Learn about and share ways to improve your workplace from good examples in your own enterprise or in other enterprises</i>			

LAMPIRAN
ERGONOMIC CHECKPOINTS YANG SUDAH DI VALIDASI
PERUSAHAAN

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<i>Material Storage and Handling</i>				
No	Checkpoint	Do you propose action?		Keterangan
		Yes	No	
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2	Keep aisles and corridors wide enough to allow two-way transport			
3	Make the surface of transport routes even, not slippery, and without obstacles			
4	Provide ramps with a small inclination instead of small stairways or sudden height differences within the workplace			
6	Use carts, hand-trucks and other wheeled devices, or rollers, when moving materials			
8	Use multi-level shelves or racks near the work area in order to minimize manual transport of materials			
9	Use mechanical devices for lifting, lowering and moving heavy materials			
11	Instead of carrying heavy weights, divide them into smaller lightweight packages, containers or trays			
14	Eliminate tasks that require bending or twisting while handling materials			
17	Provide conveniently placed waste containers			
<i>Hand tools</i>				
18	Select tools designed for the specific task requirements			
19	Provide safe power tools and make sure that safety guards are used			
21	Use vices and clamps to hold materials or work items			
24	For Hand tools, provide the tool with a grip of the proper thickness, length, shape and size for easy handling			

25	<i>Provide Hand tools with grips that have adequate friction or with guards or stoppers to avoid slips and pinches</i>			
26	<i>Provide tools with proper insulation to avoid burns and electric shocks</i>			
27	<i>Minimize vibration and noise of Hand tools</i>			
28	<i>Provide a "home" for each tool</i>			
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31	<i>Provide enough space for stable postures and stable footing during power tool operation</i>			
<i>Machine Safety</i>				
32	<i>Design controls to prevent unintentional operation</i>			
33	<i>Make emergency controls clearly visible and easily accessible from the natural position of the operator</i>			
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43	<i>Use warning signs that workers understand easily and correctly</i>			
45	<i>Purchase machines that meet safety criteria</i>			
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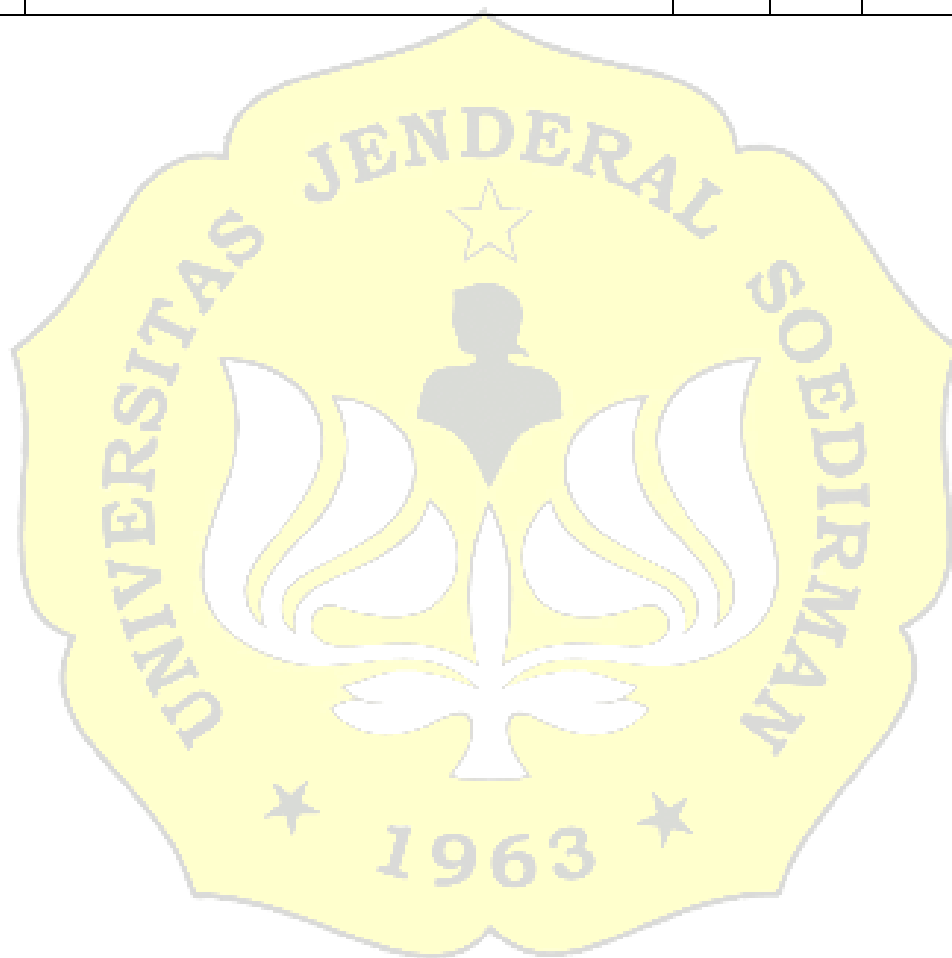
48	<i>Use interlock barriers to make it impossible for workers to reach dangerous points when the machine is in operation.</i>			
49	<i>Establish safe procedures for forklift driving by modifying the workplace and providing adequate training.</i>			
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<i>Workstation Design</i>				
51	<i>Adjust the working height for each worker at elbow level or slightly below it</i>			
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82	<i>Recycle wastes to make better use of resources and protect the environment</i>			
83	<i>Mark escape routes and keep them clear of obstacles</i>			
<i>Hazardous substances and agents</i>				
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113	<i>Provide up-to-date training for workers using computer systems</i>			
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118	<i>Combine tasks to make the work more interesting and varied</i>			
120	<i>Assign responsibility for day-to-day cleaning and housekeeping</i>			
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LAMPIRAN

PENILAIAN RISIKO EISENHOWER *MATRIX*

1. Nilai seberapa mendesak dan penting *Checkpoint* yang perlu perbaikan
Contoh untuk *Checkpoint* "*Sewaktu mengerjakan benda/barang, membawa, mengangkat, hindari gerakan membungkuk maupun memutar pinggang*":

"Seberapa mendesak tindakan perbaikan yang diperlukan untuk mengurangi postur membungkuk?" (Skala 1-4)

"Seberapa penting tindakan perbaikan tersebut dalam menjaga keselamatan pekerja?" (Skala 1-4)

Sangat Mendesak (4)	Harus dilakukan segera (dalam waktu kurang dari 1 bulan) jika tidak akan berdampak pada kelangsungan produksi atau keselamatan pekerja
Mendesak (3)	Harus dilakukan dalam waktu 1-3 bulan untuk menghindari penurunan produktivitas atau risiko kesehatan jangka pendek
Cukup Mendesak (2)	Perlu dilakukan dalam waktu 3-6 bulan untuk mencegah masalah kesehatan jangka panjang atau penurunan efisiensi
Tidak Mendesak (1)	Bisa dilakukan dalam waktu lebih dari 6 bulan tanpa risiko signifikan terhadap kesehatan atau produksi

Sangat Penting (4)	Berdampak langsung pada keselamatan pekerja dan produktivitas utama
Penting (3)	Berdampak signifikan pada kesehatan pekerja dan produktivitas jangka menengah
Cukup Penting (2)	Berdampak pada kenyamanan dan efisiensi kerja, namun tidak langsung mempengaruhi keselamatan
Tidak Penting (1)	Berdampak minimal pada kenyamanan dan efisiensi kerja

No	Aspek	Checkpoint	Urgent	Importance	Keterangan
11	Penanganan dan Penyimpanan Material (<i>Material Storage and Manual Handling</i>)	Sebagai alternatif cara untuk mengangkat/membawa barang yang berat, bagi barang menjadi beberapa bagian yang lebih ringan yang ditempatkan dalam kemasan, kotak nampun, dan lain-lain.			
14		Sewaktu mengerjakan benda/barang, membawa, mengangkat dan sebagainya hindari gerakan membungkuk maupun memutar pinggang			
19	Peralatan Tangan (<i>Hand tools</i>)	Sediakan perkakas listrik yang aman dan pastikan pelindung keselamatan digunakan			
25		Sediakan perkakas tangan dengan pegangan yang memiliki gesekan yang memadai atau dengan pelindung atau sumbat untuk menghindari tergelincir dan terjepit			
28		Sediakan “rumah” untuk setiap alat			
48	Aspek Keamanan Mesin (<i>Machine Safety</i>)	Gunakan penghalang yang saling mengunci agar pekerja tidak dapat mencapai titik berbahaya saat mesin sedang beroperasi			
62	Aspek Stasiun Kerja (<i>Workstation Design</i>)	Menyediakan pijakan yang kokoh dan stabil serta pengaturan perlindungan yang memadai untuk pekerjaan di tempat yang tinggi			
63		Meningkatkan keamanan dan kenyamanan berkendara kabin dan tempat duduk kendaraan yang digunakan di tempat kerja			
66	Aspek Pencahayaan (<i>Lighting</i>)	Nyalakan koridor, tangga, jalur landai, dan area lain di mana orang dapat berjalan atau bekerja			
78	Aspek Premis Cuaca Kerja (<i>Premises</i>)	Gunakan sistem pendingin udara untuk menyediakan iklim dalam ruangan yang kondusif bagi kesehatan dan kenyamanan manusia			
93	Aspek Bahaya Lingkungan Kerja (<i>Control of Hazardous Substance and Agents</i>)	Identifikasi ruang terbatas yang memerlukan izin masuk dan lakukan tindakan pengendalian yang memadai untuk menjadikan ruang tersebut aman untuk masuk dan bekerja			