As the South African Qualifications Authority (SAQA) registered Professional Body for Occupational Health and Safety in South Africa, the South African Institute of Occupational Safety and Health (Saiosh), we make the following submission on the Ergonomics Regulations published on 6 December 2019.

1. DEFINITIONS OF ERGONOMIC RISK, ERGONOMIC RISK ASSESSMENT AND ERGONOMICS

“ergonomic risk” means a characteristic or action in the workplace, workplace conditions, or a combination thereof that may impair overall system performance and human well-being;

“ergonomic risk assessment” means a programme, process or investigation to identify, analyse, evaluate and prioritise any risk from exposure to ergonomic risks associated with the workplace;

“ergonomics” means the scientific discipline concerned with the fundamental understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimise human well-being and overall system performance;

A. UNDERSTANDING

With respect to the definitions of “ergonomic risk”, “ergonomic risk assessment” and “ergonomics”. These provide all expansive theoretical constructs, which are far detached from the uniform legal framework needed in a country as economically diverse as South Africa. The net effect is that the majority of Employees, Health & Safety Representatives, Organized Labour, Inspectorate, Employers and Health & Safety Practitioners will not have an adequate understanding of what these terms mean or the full scope of implementation.

B. WIDE SCOPE OF APPLICATION

“ergonomic risk” means a characteristic or action in the workplace, workplace conditions, or a combination thereof that may impair overall system performance and human well-being;

(i) The prima facie reading of the “ergonomic risk” definition by a lay employer allows for extensive ambiguity of meaning. It is suggested that the definition could be read as including the scope of every hazard addressed in all regulations under the Occupational Health and Safety Act. The fact that the extreme examples of use that follow, fit into the definition of “ergonomic risk”, provides self-evidence of ambiguity:

- Electrical Machinery Regulations – 4. Work on disconnected electrical machinery. “to discharge the electrical energy to earth from such electrical machinery or any adjacent electrical machinery if there is danger there from before it is handled and to prevent any electrical machinery from being charged or made live while persons are working thereon”. To achieve this there are “characteristics or actions in the workplace (such as incorrect earthing), that may impair overall
system performance (where systems of work such as lock out tag out) and human well-being” (people can be shocked / electrocuted). It follows that this regulation is addressing an ergonomic risk;
• Pressure Equipment Regulations – if the user under 6(2)(e) fails to ensure that a gas system has a valid certificate. To achieve this there are “characteristics or actions in the workplace (such as the user not ensuring that the gas system has a valid certificate), that may impair overall system performance (where the system of ensuring that gas systems are safe for use is undermined) and human well-being (can lead to overpressures and explosions). It follows that this regulation is addressing an ergonomic risk;
• Construction Regulations – if the client under 5(1)(a) fails to prepare a baseline risk assessment there are “characteristics or actions in the workplace (such as the client not preparing the baseline risk assessment), that may impair overall system performance (the system of assessing risk is weakened) and human well-being” (people can be injured during construction due to the lack of assessment of risk). It follows that this regulation is addressing an ergonomic risk;
• Noise Induced Hearing Loss Regulations – 6 Assessment of potential noise exposure, read with 7 Noise monitoring and 8 Medical Surveillance “characteristics or actions in the workplace (such as the employer not conducting the risk assessment, conducting noise monitoring or carrying out medical surveillance), that may impair overall system performance (the systems used to assess and measure noise exposure, extending into medical systems of audiometric assessment and diagnosis are undermined) and human well-being” (people can lose hearing). It follows that this entire set of regulations are addressing ergonomic risks;

The ambiguity allowed for in this definition results in the following:

• The ergonomics regulations can be read as being directly aligned to the width of scope with Section 8 of the OHSA. This can demonstrated by asking: What hazard in the workplace is not included as “an action in the workplace, workplace conditions, or a combination thereof that may impair overall system performance and human well-being”? Answer: There is no hazard that is excluded from “Ergonomic risk”;
• The implication of the definition of “ergonomic risk” is that every occupational health and safety profession is legally (through the promulgation of the Ergonomic Regulations) a sub-profession of ergonomics. This includes Occupational Medicine, Occupational Hygiene, Mechanical, Electrical, Chemical professions etc.
• Manual Material Handling (MMH) risk factors will not be adequately controlled with these regulations as there are no specific details related to MMH, ironically meaning a lack of control over muscular skeletal injuries;
• It is suggested, that given the ambiguity of the definition of “ergonomic risk”, it will not be possible for the Department to institute a prosecution under these regulations. The reason for this is that it is suggested that:
  o The courts will apply the doctrine of contra proferentem, where the preferred meaning used should be the one that works against the interests of the party who provided the wording. In this case the Department provided the wording;
  o it will not be possible to prove that the risk assessment requirements within these regulations meet the reasonable man test or meet the threshold of beyond reasonable doubt.
(ii) The definition of “Ergonomics” is a direct copy of the International Ergonomics Association (IEA) definition and the definition of “ergonomic risk” is derived from this definition.

“Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among human and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance.”

International Ergonomics Association Executive Council, August 2000

Both the definition of “ergonomics” and “ergonomic risk” are both intentional definitions, rather than extensional definitions. In explanation, in relation to the term “system performance” used in the definition, this provides the sense of the term but does not list the types of systems it is referring to. It follows that it is reasonable to see what hazards the IEA include in ergonomics (starting from page 12 – directly copied), providing detailed clarification on the terms used within the definition.


- **Physical ergonomics** is concerned with human anatomical, anthropometric, physiological and biomechanical characteristics as they relate to physical activity. Relevant topics include working postures, materials handling, repetitive movements, heavy work, work-related musculoskeletal disorders, workplace layout, noise, thermal conditions and vibration, safety and health, as these relate to work.

- **Cognitive ergonomics** is concerned with mental processes, such as perception, memory, reasoning and motor response, as they affect interactions among humans and other elements of a system. Relevant topics include mental workload, decision-making, skilled performance, human-computer interaction, human error, work stress and training as these may relate to the way humans work in systems.

- **Organisational ergonomics** is concerned with the optimisation of socio-technical systems, including their organisational structures, policies and processes. Relevant topics include human system considerations in communication, human resource management, work design, design of work schedules, teamwork, participatory design, community ergonomics, cooperative work, new work models, virtual organisations, tele-work and quality management.

Note that:

- It is unhelpful in law to use intentional definitions and that extensional definitions are preferred;
- It follows that the Ergonomic Risk Assessment in terms of Regulation 6, must by requirement of the definition assess all of these hazards.

(iii) In the SAIOH / Saiosh comment on the draft Ergonomic Regulations, the following comment was made:

“Comment/ Input/ Correction/ Proposal. The definition of cognitive in relation to cognitive ergonomics is extremely wide, poorly defined and should be removed. It follows that all cognitive aspects to the regulations need to be entirely removed.
Plus, motivation:

- The implied scope includes internal and external ergonomic risk factors: When viewed in context of an ergonomics programme, which includes assessment, information and training and control, it is difficult to comprehend. By difficult to comprehend we mean “no reasonable person understands what this means”. Even amongst professionals there is an unacceptably high difference in understanding and interpretation as to the meaning of this definition. When multiple people were asked what this meant, multiple answers were received.
- It is not possible to manage cognitive ergonomics at a practical value-adding level, which aligns with the principles of risk / controls / costs as detailed in the definition of reasonably practicable. The definition is too wide and there is too much inter-person variability for this to meet the criteria of reasonably practicable.
- The 2003 Construction Regulations included the definition “Psychological fitness”, which includes aspects of cognitive ergonomics (although psychological fitness is only a sub-set of cognitive ergonomics). Ultimately this definition had to be deleted from the 2014 Construction Regulations because assessment of “psychological fitness” was not attainable in practice. If the DoL were to publish these ergonomic regulations with “cognitive ergonomics” it would bring back “psychological fitness” into the regulations, as cognitive ergonomics would be applicable to all workplaces. Not only would it bring this failed concept back into legislation, it would expand the failed concept, extending it to all employers.
- The definition of cognitive ergonomics is so wide that it would include aspects such as bullying, stress, job security, job content, work demands, nature of work contract, attitude, motivation and perception (UK HSE). In 2016 Institute for Management Development (IMD) World Competitiveness Yearbook (WCY), ranked South Africa 52nd out of 61 countries. It is anticipated that the potential abuse of cognitive ergonomics would be likely to drive down South African productivity levels further. It follows that it is critical that the potential misuse of this definition on productivity levels be assessed.”

In the promulgated Ergonomics Regulations the definition of “cognitive ergonomics” was removed, but the definition of “Ergonomic Risk Factors”, was changed from:

Ergonomic Risk Factors – Actions in the workplace, workplace conditions, or a combination thereof, which may cause or aggravate a Work-Related-Musculoskeletal-Disorder.

To a new definition of “ergonomic risk”:

"ergonomic risk" means a characteristic or action in the workplace, workplace conditions, or a combination thereof that may impair overall system performance and human well-being;

This has the effect of retaining the definition of “cognitive ergonomics” in the regulations (as the IEA specifically include Cognitive Ergonomics together with Physical and Organisational Ergonomics). Overall the change of “Ergonomic Risk Factors” to the “Ergonomic Risk” definition, dramatically widened the scope of the regulations in the opposite manner to that proposed by SAIOH / Saiosh, potentially raising the issue of mala fides. It follows that the risks attached to South Africa which was clearly highlighted in the comment all remain, albeit amplified.

(iv) The definition of “ergonomic risk” includes both hazards within the current scope of the Regulations promulgated under the Occupational Health and Safety Act, as well as
covering hazards which are outside of current regulations promulgated under the Act (see the scope of 1(B)(iii), which follows e.g. Organisational Ergonomics - quality management). The point being is that the scope of the Ergonomic Regulations violates the scope of the OHSA and as subservient legislation this is ultra vires.

2. LIMITING THE SCIENCE OF ERGONOMICS TO A PROFESSIONAL SOCIETY’S APPLICATION OF ERGONOMICS

A. DEFINITION: ERGONOMICS

As previously stated, the definition of ergonomics in the Ergonomics Regulations is the IEA definition.

“Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among human and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance.”

International Ergonomics Association Executive Council, August 2000

It is noted that the Ergonomics Society of South Africa (ESSA) is a federated member of the IEA. The IEA definition appears on the homepage of ESSA’s website https://www.ergonomicssa.com/.

The reference to both the “scientific discipline” and “and the profession that applies theory...”, makes it very clear that this purported definition of ergonomics is not a definition of ergonomics. Rather it is the application and scope of understanding of ergonomics by members registered with a specific professional body. This personalisation of ergonomics, to “the profession that applies theory...”, does not align to the accepted application of definitions used in law, including the OHSA or any other regulation under the OHSA.

B. COMPETENT PERSON

The definition of competent person includes “qualifications specific to ergonomics”, where it is noted that there is only one profession that has “Qualifications specific to ergonomics“. As recorded in the SAIOH / Saiosh submission to the Department in 2017 it was noted that the professional bodies who practice ergonomics in South Africa include: “Saiosh, SAIOH, ESSA, South African Society of Physiotherapy (SASP), Biokinetics Association of South Africa (BASA); South African Institute of Environmental Health (SAIEH), Occupational Therapy Association of South Africa (OTASA); South African Association for Occupational Health Nursing Practitioners (SASOHN); Chiropractic’s Association of South Africa (CASA); South African Society of Occupational Medicine (SASOM); etc”. It follows that there are other professions who have ergonomics in their qualification, including recognition by SAQA, but the way that the regulation has been written narrows the qualifications down to registration with only one professional body.
The net effect of the definition of competent person, “qualifications specific to ergonomics” when read with the definition of ergonomics “the profession that applies theory...”, makes it clear that the regulations have been diverted from the science (hazard) of ergonomics and limited to a professional society’s application of the discipline of ergonomics. Collectively we suggest that violates good legislation drafting practice.

Suggest that the definition of competent person should be re-written to read:
"competent person” in relation to ergonomics, means a person who—

(a) has in respect of the work or task to be performed the required knowledge, training and experience in ergonomics and, where applicable, qualifications specific to ergonomics: provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2008 (Act No. 67 of 2008), those qualifications and that training must be regarded as the required qualifications and training; and

(b) is familiar with the Act and the applicable regulations made under the Act;

This change would embrace all the professions which include ergonomics in their qualifications, which are recognised in terms of the NQF.

3. SOCIAL IMPACT ASSESSMENT (SIA)

These regulations impact on every self-employed person and employer in South Africa. The following questions arise:

(a) Because of the extremely wide scope of “ergonomic risk” this provides a mechanism for abuse and increase of claims submitted to both COIDA and FEM;

(b) The Construction Industry, which is already economically in dire straits will be the most severely impacted by the implementation of these regulations. The continuous change of a construction site through all the phases of construction, means that that the risk assessment needs to be continually re-evaluated. This will result in delays in the approval of site specific health and safety plan (CR 7(1)(a)) resulting in a knock on financial effect;

(c) The regulations will drive both the manufacturing and construction industry over the long term to revert to mechanisation as a method to reduce ergonomic risks. This will lead to further unemployment which is already a serious concern within South Africa;

(d) It is uncertain whether the SIA considered the cost of medical surveillance for every employer in South Africa. If every employer were to carry out the medical surveillance requirements (it is understood that it is not possible to do), it would result in the closure of thousands of employers. Currently the effect of this requirement is that every employer in South Africa will be non-compliant with the requirements of Regulation 8.
It is not possible to understand without reviewing the SIA, whether these impacts were assessed when ACOHS reviewed and approved these regulations.

4. ERGONOMIC RISK ASSESSMENT INDICATES MEDICAL SURVEILLANCE

Medical surveillance

8. (1) An employer must ensure that an employee is placed under medical surveillance, which is overseen by an occupational medicine practitioner, if-

(a) the ergonomic risk assessment referred to in regulation 6 indicates the need for the employee to be placed under medical surveillance; or

(b) an occupational health practitioner recommends that relevant employees must be under medical surveillance, in which case the employer may call upon an occupational medicine practitioner to ratify the appropriateness of such recommendation.

The following issues are created by the medical surveillance requirements:

A. COMPETENT PERSON

In terms of Regulation 6 the Ergonomic Risk Assessment needs to be carried out by a competent person who is not required to have any medical training. This person must then indicate whether an employee is placed under medical surveillance. As provided for in the definition of “ergonomic risk”, the scope of hazards is extremely wide, meaning that the person who carries out the assessment in terms of regulation 6 needs to direct medical surveillance based on ergonomic risks;

B. SCOPE OF HAZARDS

Since the definition of Ergonomic Risks is taken from ICOH, it follows that the hazards related to “Ergonomic Risk” (detailed in section 1(B)(iii) of this document) are required to be assessed in terms of Regulation 6, which provide triggers for medical surveillance. It is not understood how the competent person (in terms of this regulation) will have the competence to direct this wide scope of medical surveillance?

C. SCOPE OF EMPLOYERS

The scope of the ergonomics is so wide that it covers every sector and every employer in South Africa. Estimates on the number of business within South Africa vary, where: “the survey of employers and self employed last published in 2014, estimates that there are approximately 1.5 million non-VAT registered businesses. On the other hand, the Finscope 2010 study estimates 5.9 million small businesses in South Africa. The Bureau of Economic Research 2016 study (essentially an update of an earlier 2008 study from the Department of Trade and Industry) estimates the number of small businesses to be in the region of 2.2million”. [https://www.smallbusinessinstitute.co.za/wp-content/uploads/2019/01/SBIbaselineStudyAlertfinal.pdf]. In comparison there are a very limited number of SASOM registered Occupational Medicine Practitioners (OMP’s) in South Africa. The regulation uses the term “overseen by”, which indicates direct oversight by the OMP’s. It follows that the mechanism provided of the OMP overseeing medical surveillance is unworkable.
D. COMPLEXITY OF MEDICAL SURVEILLANCE FOR ERGONOMIC RISKS

The Explanatory notes indicate that medical surveillance is performed at “regular pre-determined intervals at the beginning, termination of employment and throughout the employment period...” Additionally, elements of medical surveillance are then detailed.

Medical surveillance is performed at regular pre-determined intervals; at the beginning, termination of employment and throughout the employment period and/or as determined by the occupational medicine practitioner. Medical surveillance must be carried out by occupational medicine practitioners and occupational health practitioners.

Medical surveillance includes the following elements:

1. Identification of employees according to the ergonomics risk assessment, for which the medical surveillance activities will be appropriate;
2. An initial health examination and collection of clinical history;
3. Periodic health examinations at regularly scheduled intervals;
4. More frequent and scheduled health examinations, as indicated on the basis of findings from these examinations;
5. A written report of medical findings;
6. Employee training to recognise symptoms of exposures to ergonomic risks; and
7. Employer actions in response to the identified adverse health effects on employees with ongoing data analysis to evaluate collected information and institute control measures, including employee rehabilitation at the workplace.

The reasons why no country in the world (other than South Africa) has promulgated ergonomic regulations with the wide scope of these regulations, including medical surveillance, is the complexity associated with surveillance. Using musculoskeletal risk factors as an example:

- “Work-related psychosocial factors recognized by the panel to be associated with low back disorders include rapid work pace, monotonous work, low job satisfaction, low decision latitude, and job stress. High job demands and high job stress are work-related psychosocial factors that are associated with the occurrence of upper extremity disorders”. [https://www.ncbi.nlm.nih.gov/books/NBK222436/]
“FIGURE ES.1 A conceptual model of the possible roles and influences that various factors may play in the development of musculoskeletal disorders. The dotted box outline on the right indicates the possible pathways and processes that could occur within the person, including the biomechanical load-tolerance relationship and the factors that may mediate the load-tolerance relationship, such as individual factors and adaptation. Outcomes may be a result of this relationship and may be influenced by individual factors, such as conditioning or psychological state. The dotted box on the left indicates the possible influences of the workplace on the sequence of events that can lead to musculoskeletal disorders in the person. Arrows between “the workplace” factors and “the person” box indicate the various research disciplines (epidemiology, biomechanics, physiology, etc.) that have attempted to explain the relationship. For example, epidemiology typically searches for associations between external loading characteristics and reported outcomes, whereas the relationship between external loads and biomechanical loading is usually explored via biomechanical studies (adapted from National Research Council, 1999b)”.  

https://www.nap.edu/read/10032/chapter/2#2

These references indicate that there is no a simple cause and effect model associated with musculoskeletal ergonomic risks, nor with the medical surveillance of musculoskeletal outcomes.
E. ACTIVE VS PASSIVE SURVEILLANCE

Regulation 8 is based on the understanding that there is value to do regular active medical surveillance on employees exposed to ergonomic risks. Because of the complexity of ergonomic risk factors, the active medical surveillance approach taken in other regulations such as NIHL, RHCS, AR and LR is inappropriate for ergonomics. Rather medical surveillance requirements should primarily focus on:

- Preventative approach such as setting and implementing minimum inherent medical requirements as part of fitness to work; and
- Passive employee reporting of muscular skeletal symptoms.

5. CONCLUSION:

Saiosh has strong reservations related to the aspects that have been detailed in this submission. We request the following actions:

That new Ergonomics Regulations be re-drafted and either:

- The current regulations be withdrawn and given a more appropriate scope; or
- A temporary exemption in terms of Section 40 be issued by the Minister for all employers.

The revised scope of the proposed redrafted regulations requested is to limit the regulations to Manual Material Handling, which would address the major ergonomic risks within South Africa. This would align it to the UK Manual Handling Operations Regulations 1992, as amended in 2002;

Within the redrafting, the definitions of “competent person, ergonomic risk, ergonomic risk assessment and ergonomics”, as well as medical surveillance be rewritten, as per comment provided.

Without access to the SIA study, we are uncertain what led the Ergonomics Technical Committee to draft regulations with such a wide scope and other aspects addressed in this submission. Please can this aspect be reviewed forthwith by the Chief Inspector’s office.