



**Physical Demands Description with
Cognitive Demands Analysis**

Company Name: Options Incorporated

Company Address: 22 Westmount Road, Guelph Ontario

Date of Evaluation: September 2021

Position Analyzed: Ergonomic Consultant

Shift Operation: - Typically: 8hrs/shift, but up to 44hrs/week
- 5 days/week; typically Monday to Friday
- Variable start times depending on client demands
- One 30 minute lunch

Contact Person: Kirsti MacAulay, CCPE
Principal Ergonomist

An Ergonomic Consultant is a professional position that requires a consultant to identify and assess ergonomic hazards in various workplaces (i.e. office settings, nuclear industries, health care, automotive, manufacturing, food, and municipalities etc) while producing technical reports in a proficient and timely manner. Specifically this includes completing data collection, taking measurements and forces, analyzing data and interpreting results, followed by compiling detailed analysis/reports. Consultants are also required to assemble solutions, within client and company driven parameters. Ergonomic Consultants may also be required to instruct and facilitate training sessions including setup of computer / visual audio equipment. Due to the nature of consulting, Ergonomic Consultants are required to conduct themselves professionally at all times and effectively interact with diverse clientele while promoting safe, healthy and ergonomic inspired workplaces. They may be required to manage multiple projects simultaneously and adjust support levels and timelines to adhere to client and company deadlines.

An Ergonomic Consultant is required to have a valid drivers' license as they will be required to support clients at varying locations, typically along the Highway 401 corridor. A professional in this position may be required to work in a close team environment (i.e. embedded client support) or independently depending on the project they are supporting. This may be required on either a physical (face to face) or virtual (remote) basis.

Due to the inherent dynamic nature of this position, the required physical demands are variable on a daily basis but will typically include at least two of the outlined essential tasks. However, within each week a professional in this position could be required to focus on a single task or all four of the essential tasks outlined within one day. The variability and flexibility will depend on the required client support, project deadlines, and experience level of the consultant.

Task Number	Essential Tasks
1	Collecting data and observing within various work environments
2	Completing data analysis and report writing
3	Instructing and facilitating training sessions
4	Travelling between and to client locations

Physical Demands Analysis: Summary

Position Analyzed: Ergonomic Consultant

Date of Evaluation: September 2021

The below chart is a summary of the overall physical demands required by a professional in this position. Details on each of these parameters are presented in the remainder of the document.

Parameter	Requirements				
	Not Required	Seldom (1-5%)	Occasional (6-33%)	Frequent (34-66%)	Constant (67-100%)
Stand			X	—————→	X
Walk		X	————→		
Sit			X	—————→	X
Stoop/Bend		X			
Twist		X			
Kneel/Crouch		X			
Climb		X			
Lift		X	————→		
Carry		X	————→		
Push/Pull		X	————→		
Handling/Power Grip			X	————→	X
Fingering/Pinch Grip			X	—————→	X
Vertical Reach					
Below Knuckle			X		
Knuckle to Shoulder					X
Above Shoulder			X		
Horizontal Reach					
Beyond functional reach (45 cm)			X		

Physical Demands Summary

Task #1: Collecting data and observing within various work environments

Details: Depending on the project being supported, the Ergonomic Consultant could be required to complete data collection at single or various client locations. Collecting data may include, but is not limited to, taking photographs and videos, measuring vertical and horizontal reaches with a tape measure, and taking various force measurements using a force gauge or weights using a scale. Consultants are required to take a hands on approach within the workplaces being observed. As a result, to obtain these measurements and collect this data they will reach to required areas, lift/weigh required objects, push/pull dollies, carts, hoists, lift assists, parts, or other equipment to capture forces. While collecting data, Consultants must be cautious not to overexert and/or avoid repetition in order to minimize exposure to awkward postures and/or unusual/high forces. It is deemed sufficient to simply categorize such instances as “high forces” or “forces exceed recommended guidelines”. The Ergonomic Consultant may also be required to adjust existing equipment (chairs, keyboard trays, etc.) to support ideal results. The Consultant will complete all data collection while wearing any client/environment specific Personal Protective Equipment. Due to the varying nature of projects, postures and mobility demands will vary depending on the project supported. The duration of data collection within a day typically ranges from 60 minutes to 4 hours prolonged standing, with periods of intermittent walking around the work area.

Reach			
<i>Vertical Reach - Range (cm)</i>	<i>Vertical Reach - Usual (cm)</i>	<i>Horizontal Reach - Range (cm)</i>	<i>Horizontal Reach - Usual (cm)</i>
0 - 200 cm	30 - 185 cm	0 - 100 cm	0 - 70 cm

Lifting Parameters			
<i>Parameter</i>	<i>Measurement (cm)</i>	<i>Weight (kg)</i>	<i>Times/cycle</i>
<i>Horizontal Load Distance (distance of knuckles away from body)</i>	Variable, but typically at distance of comfort	Notebook: <1 kg	Variable as directly dependent on project being supported. Consultants must consider client requests and structure their data collection to avoid repetitive exposure to lifting demands.
<i>Vertical Load Distance (height of load at start of lift)</i>	Notebook, Measurement Tools: typically between 0 - 90 cm Objects being measured: Variable depending on object and specific task demands/environment	Measurement Tools: force gauges, tape measure, cameras: Up to 4.5 kg Objects being measured: variable with potential to lift loads up to 30 kg provided safe lifting is feasible. Otherwise, forces above 21kg will be logged as “high forces” or “forces exceed recommended guidelines”	
<i>Vertical Lifting Distance (distance that the load is lifted through)</i>	Height of comfort (typically between waist and chest)		

Carrying Parameters			
<i>Parameter</i>	<i>Measurement (cm,m)</i>	<i>Weight (kg)</i>	<i>Times/cycle</i>
<i>Vertical Position of Load</i>	Height of comfort (typically between waist and chest)	Notebook: <1 kg Measurement Tools: force gauges, tape measure, cameras: Up to 4.5 kg	Variable as directly dependent on project being supported. Consultants have access to rolling bags to transport equipment instead of carrying it.
<i>Horizontal Position of Load</i>	Distance of comfort		
<i>Distance Carried</i>	Variable: typically <1 to 500 m but could be around client facility.		

Pushing/Pulling Parameters			
<i>Handle Height (cm)</i>	<i>Initial (kg)</i>	<i>Distance of Push (up to 2m, 2-7.5m, >7.5m)</i>	<i>Times/cycle</i>
1. Office/plant doors: 100-110 cm 2. Objects measured: Various heights (parts/equipment/dollies) depending on project demands	1. Doors: 1. 3 to 5 kg 2. Objects measured: variable with potential to push/pull loads up to 41 kg provided safe pushing/pulling is feasible. Otherwise, forces above 27kg will be logged as “high forces” or “forces exceed recommended guidelines”	1. Doors: Minimal <1 m 2. Objects measured: Variable	1. Doors: As needed 2. Objects measured: Variable, Consultants must consider client requests and structure their data collection to avoid repetitive exposure to pushing/pulling demands.

Postures			
<i>Upper Extremity</i>		<i>Lower Extremity</i>	
<i>Neck:</i>	0 - 45 deg flex, 90 deg rot'n, 20 deg ext	<i>Torso:</i>	0 - 90 deg flex
<i>Shoulder:</i>	0 - 180 deg flex, 0 - 180 deg abduct, 20 deg ext	<i>Hip/Knee/Ankle:</i>	Used to sit, stand, walk, crouch, climb and/or squat
<i>Elbow:</i>	0 - 180 deg flex/ext		
<i>Wrist:</i>	+/- 30 deg flex/ext/dev'n		
<i>Finger Demands/Dexterity</i>		<i>General Demands</i>	
<i>Hand</i>	Grip - Power and Pinch	<i>Mobility</i>	Walk
<i>Fingers</i>	Handling and Fine Fingering	<i>Other</i>	Kneeling and Climbing stairs

Physical Demands Summary

Task #2:

Completing data analysis and report writing

Details: : Following collection of data, the Ergonomic Consultant is responsible for analyzing and/or collating the information. Once the analysis is completed, the consultant will prepare a report consistent the scope of the project. All reports are completed electronically through use of word processing, spreadsheets, database software, as well as Internet resources. The equipment (laptop, desktop, chair) and environment (head office, remote, client location) will vary depending on the project and client being supported. As a result, the Ergonomic Consultant is required to set up their computer workstation in the most ideal ergonomic manner based on available equipment provided. Due to the varying nature of project timelines, deliverables, and deadlines, the duration of sustained data analysis and report writing will vary. As the Ergonomic Consultant has some control over their working postures within this task, the duration of sustained seated postures within a day is typically 60 minutes before a postural break is taken. Depending on the nature of the project and work day, the Consultant may resume seated postures following postural breaks for the majority of their day.

Reach			
Vertical Reach - Range (cm)	Vertical Reach - Usual (cm)	Horizontal Reach - Range (cm)	Horizontal Reach - Usual (cm)
30 - 160 cm	75 - 140 cm	0 - maximum arm's reach	0 - 50 cm

Lifting Parameters			
Parameter	Measurement (cm)	Weight (kg)	Times/cycle
Horizontal Load Distance (distance of knuckles away from body)	Distance of comfort	Notebook: <1 kg Laptop Computer/Supplies: 4.5 kg	Variable Up to 4 times per shift
Vertical Load Distance (height of load at start of lift)	Notebooks, reference materials, Laptop Computer and accessories: varies from 30 - 90cm		
Vertical Lifting Distance (distance that the load is lifted through)	Variable but typically onto desk or working surface/laptop stand.		

Carrying Parameters			
Parameter	Measurement (cm,m)	Weight (kg)	Times/cycle
Vertical Position of Load	Height of comfort	Notebook: <1 kg	Variable as directly dependent on project/client being supported. Consultants have access to rolling bags to transport equipment instead of carrying it.
Horizontal Position of Load	Distance of comfort	Laptop Computer/ Supplies: 4.5 kg	
Distance Carried	Variable: Typically <1 to 1000 m	*May be required while climbing stairs into/out of working location	

Pushing/Pulling Parameters			
Handle Height (cm)	Initial (kg)	Distance of Push (up to 2m, 2-7.5m, >7.5m)	Times/cycle
Roller bag: variable, 70 - 100 cm	Variable: < 5kg	Variable: Typically <1 to 1000 m	Variable: Up to 4 times per shift

Postures			
Upper Extremity		Lower Extremity	
Neck:	0 - 45 deg flex and rot'n	Torso:	0 - 90 deg flex, primarily when in seated postures
Shoulder:	0 - 120 deg flex and abduct	Hip/Knee/Ankle:	Used to sit, stand, and squat/crouch
Elbow:	0 - 180 deg flex/ext		
Wrist:	+/- 20 deg flex/ext/dev'n		
Finger Demands/Dexterity		General Demands	
Hand	Grip - Power and Pinch	Mobility	Sitting and Walking
Fingers	Handling and Fine Fingering	Other	Standing, crouching, squatting, and climbing stairs

Physical Demands Summary

Task #3: Instructing and facilitating training sessions

Details: The Ergonomic Consultant may be required to instruct and facilitate training sessions at various client locations. Depending on the client, this may only include setting up computer but could also include setting up the audio/visual equipment, as well as moving chairs and tables to create a positive training layout. Training sessions may be delivered at client locations in conference rooms, at hotel type locations, or via webinar format. Throughout instructing and facilitating the training session, the Consultant may be required to provide demonstrations of tasks, ideal work methods and various postures. As a result, the postures and movements required will vary depending on the topic of training delivered. Depending on the type and duration of training session, the Consultant may stand/walk for between 1 - 2 hours at a time while presenting material before a 15 minute break. For full day training sessions they would be required to stand for the duration of the session other than 15 min breaks and a lunch break.

Reach			
Vertical Reach - Range (cm)	Vertical Reach - Usual (cm)	Horizontal Reach - Range (cm)	Horizontal Reach - Usual (cm)
0 - 200 cm	75 - 185 cm	0 - maximum arm's reach	0 - 50 cm

Lifting Parameters			
Parameter	Measurement (cm)	Weight (kg)	Times/cycle
Horizontal Load Distance (distance of knuckles away from body)	Distance of comfort	Laptop computer, handouts, InFocus machine: Up to 6 kg	Variable Up to 4 times per shift
Vertical Load Distance (height of load at start of lift)	Notebooks, reference materials, Laptop Computer and accessories: varies from 30 - 90cm		
Vertical Lifting Distance (distance that the load is lifted through)	Variable but typically onto table or working surface/lecturn.		

Carrying Parameters			
Parameter	Measurement (cm,m)	Weight (kg)	Times/cycle
Vertical Position of Load	Height of comfort	Laptop Computer/ Supplies: Up to 6 kg *May be required while climbing stairs into/out of working location	Variable Up to 4 times per shift Consultants have access to rolling bags to transport items instead of carrying them.
Horizontal Position of Load	Distance of comfort		
Distance Carried	Variable: Typically <1 to 1000 m		

Pushing/Pulling Parameters			
Handle Height (cm)	Initial (kg)	Distance of Push (up to 2m, 2-7.5m, >7.5m)	Times/cycle
1. Doors (100 - 110 cm) 2. Overhead screen (up to 200 cm) 3. Rolling laptop / office bag (70 - 100 cm)	1. Doors: 3 to 5 kg 2. Overhead screen: 1 to 2 kg 3. Rolling bag: <5 kg	1. Doors: Minimal <1 m 2. Overhead screen: <1 m 3. Rolling bag: <1 to 1000 m	Variable Up to 4 times per shift

Postures			
Upper Extremity		Lower Extremity	
Neck:	0 - 45 deg flex, 0 - 30 deg ext, 0 - 45 degrees rotation	Torso:	0 - 90 deg flex, primarily when in seated postures
Shoulder:	0 - 180 deg flex, 0 - 180 deg abduct	Hip/Knee/Ankle:	Used to sit, stand, walk, climb and squat/crouch
Elbow:	0 - 180 deg flex/ext		
Wrist:	+/- 30 deg flex/ext/dev'n		
Finger Demands/Dexterity		General Demands	
Hand	Grip - Power and Pinch	Mobility	Standing and Walking
Fingers	Handling and Fine Fingering	Other	Sitting, crouching, squatting, and climbing stairs

Physical Demands Summary

Task #4:

Travelling between and to client locations

Details: Depending on the projects being supported, the Ergonomic Consultant may be required to travel between client locations on the same day. Travelling between clients may require the Consultant to load/unload their vehicle with equipment/supplies needed to support the data collection or training session. Travelling distances will vary depending on client support, up to 60 minute sustained sitting tolerances may be required.

Reach			
Vertical Reach - Range (cm)	Vertical Reach - Usual (cm)	Horizontal Reach - Range (cm)	Horizontal Reach - Usual (cm)
30 - 200 cm	85 - 105 cm	0 - 75 cm	0 - 55 cm

Lifting Parameters			
Parameter	Measurement (cm)	Weight (kg)	Times/cycle
Horizontal Load Distance (distance of knuckles away from body)	Up to 65 cm	Equipment/Supplies/Laptop/Personal bags: Up to 6 kg	Variable
Vertical Load Distance (height of load at start of lift)	Varies, typically from 30 - 90cm		
Vertical Lifting Distance (distance that the load is lifted through)	30 - 120 cm		

Carrying Parameters			
Parameter	Measurement (cm,m)	Weight (kg)	Times/cycle
Vertical Position of Load	Height of comfort	Equipment/Supplies/Laptop/Personal bags: Up to 6 kg	Variable Up to 4 times per shift
Horizontal Position of Load	Distance of comfort		Consultants have access to rolling bags to transport items instead of carrying them
Distance Carried	Variable: Typically <1 to 1000 m		

Pushing/Pulling Parameters			
Handle Height (cm)	Initial (kg)	Distance of Push (up to 2m, 2-7.5m, >7.5m)	Times/cycle
1. Open/close vehicle doors (80 - 110 cm)	1. 3 to 5 kg	1. Minimal, <1 m	Variable, up to 4 trips per shift.
2. Shifting gears (60 cm)	2. 1 to 2 kg	2. Minimal, <1 m	
3. Engaging parking brake (60 - 70 cm)	3. 1 to 2 kg	3. Minimal, <1 m	
4. Office/plant doors (100 - 110 cm)	4. 3 to 5 kg	4. Minimal, <1 m	
5. Rolling laptop / Office Bag (90 - 100 cm)	5. <5 kg	5. <1 to 1000 m	

Postures			
Upper Extremity		Lower Extremity	
Neck:	0 - 45 deg flex, 0 - 30 deg ext, 0 - 45 deg rot'n	Torso:	0 - 90 deg flex, primarily when in seated/driving postures
Shoulder:	0 - 180 deg flex, 0 - 180 deg abduct	Hip/Knee/Ankle:	Used to sit, stand, walk and operate pedals to drive vehicle
Elbow:	0 - 180 deg flex/ext		
Wrist:	+/- 30 deg flex/ext/dev'n		
Finger Demands/Dexterity		General Demands	
Hand	Grip - Power and Pinch	Mobility	Sitting
Fingers	Handling and Fine Fingering	Other	Climbing in/out of vehicle

Summary of Additional Specific Requirements

Cognitive Demands	Required	Comments or Details
Hearing		
Conversation	X	With co-workers, management team and clients
Other Sounds	X	Announcements and alarms
Vision		
Near	X	Computer work, paperwork, and data collection
Far	X	Navigating throughout client locations and driving
Colour	X	Computer work and during data collection
Perception		
Spatial Form	X	Data collection
Feeling	X	Data collection
Reading	X	Computer work, paperwork, and driving
Writing	X	Data collection, paperwork and analysis
Speech	X	With co-workers, management team and clients

Environmental Demands	Required	Comments or Details
Air borne particles	X	May be exposed depending on client (i.e. health care, hospitals)
Noise	X	Hearing protection may be required depending on the client
Hazardous machines/tools	X	May be exposed depending on client
Radiant/thermal energy	X	May be exposed depending on client
Congested work site	X	May be exposed depending on client

Conditions of Work	Required	Comments or Details
Work alone	X	May support independent projects
Work Independently but in a team	X	May support independent projects, but works as a larger part of a consulting team
Deadline pressure	X	Required to meet client deadlines
Operate equipment/machinery	X	Tools required for data collection and analysis (i.e. camera, force gauge, scale, tape measure, computer)
Shift work	X	Typically day shift support, but afternoon or night support may be required depending on client requests

Personal Protective Equipment	Required	Comments or Details
Safety glasses	X	May be required depending on client
Hard hat	X	May be required depending on client
Jacket/sleeves/paint suit	X	May be required depending on client
Safety shoes	X	May be required depending on client
Hearing protection	X	May be required depending on client
Safety vest	X	May be required depending on client
Gloves	X	May be required depending on client
Face mask	X	May be required depending on client

Psychological / Cognitive Job Demands Analysis

Category	Area of Focus <i>Description / Definition</i>	Ergonomic Consultant <i>Micro= 80% / Meso= 15% / Macro= 5%</i>
Self-Supervision	The ability to work effectively without supervision and demonstrate initiative. When required, they are expected to exercise good problem solving and judgement and also think beyond the assigned tasks to see opportunities.	Able to work effectively with frequent supervision following the Manager/Supervisor providing work direction. Occasionally demonstrate initiative to think beyond assigned tasks.
Time Pressures	The extent to which work tasks are expected to be completed within a given time period or the extent to which a fast work pace is required because of the nature of the work or work volume.	Able to manage frequent pressure to meet deadlines, work within time constraints, and/or support a high volume of work and moderately fast pace of work. Able to complete tasks as directed within timelines.
Attention to Detail	The ability to support work tasks that require attention to or concentration on details of information. This demand implies that insufficient attention to detail will result in work errors and/or inefficiencies.	Significant attention to detail or concentration is required for many tasks or intense attention to detail or concentration required for some tasks. Able to apply <i>meso level</i> common sense/logic checks to <i>micro detail</i> .
Performance of multiple tasks	The ability to perform and/or monitor more than one task at a time and to be able to judge when tasks require attention. The ability to prioritize tasks and manage time effectively (juggle various tasks efficiently) is required.	Responsible for multiple tasks, with some time management skill and judgement required for successful ongoing establishment of priorities.
Exposure to distracting stimuli	The ability to perform work duties without distraction from visual, auditory or other sensory stimuli. May include verbal conversations of colleagues in an open office area, phones ringing, and movement of people.	Able to work within environments with moderate degree of distracting stimuli
Need to work co-operatively with others	The ability to work co-operatively with others. This may include team projects, shared job duties, interacting with Management, etc. This requires one to have good communication skills, good teamwork and interpersonal skills, be open minded, diplomatic or have good negotiation skills.	Able to work in close co-operation with others when required.
Exposure to emotional or confrontational situations	Exposure to situations in which a client or the public may be emotional or confrontational and the consultant is required to interact with the individual in order to complete a job requirement. These scenarios may be in person or over the telephone.	Infrequent exposure to emotional or confrontational circumstances or individuals with whom the consultant must interact in order to complete job requirements.
Responsibility and accountability	The extent of liability or safety risk that could result if the consultant does not exercise appropriate judgement or attention, or follow policies, procedures, and processes during the performance of job tasks.	Errors in judgement or attention would result in liability or risks ranging from inconvenience to serious legal consequences, significant expense, or health and safety risks to clients, colleagues, or the company.
Reading literacy	The ability to read and comprehend English text and written documents.	A high degree of reading literacy is required to read reports, references, or other documents with a high degree of comprehension

Psychological / Cognitive Job Demands Analysis

Category	Area of Focus <i>Description / Definition</i>	Ergonomic Consultant <i>Micro= 80% / Meso= 15% / Macro= 5%</i>
Written literacy	The ability to create English text within generally accepted grammar and spelling norms.	Able to create memos, reports, or any communications with accurate spelling, grammatical construction, professional format (pdf margins, titles, fonts, sizes of fonts), concise, clarity, and/or careful wording appropriate to the audience.
Data Analytics	The ability to process, analyze, and comprehend numerical information even if the calculation is performed electronically.	Able to use complex arithmetic operations such as division, multiplication, percentages, ratios and begin to apply abstract mathematical formulae e.g., statistical comparisons, co-relating data sets. Able to apply meso level common sense/logic checks to micro detail.
Computer literacy	The extent to which a job requires the ability to use computer technology	Able to use standard computer programs (e.g. Excel, WORD, Power Point, video conferencing) and smart phones (text, emails, Apps) at an advanced level and initiate problem solving skills where reasonable.
Verbal Communication	The ability to clearly comprehend and express ideas and information, through conversations and presentations across multiple mediums (ie. over the phone, in person, on camera).	Communication skills are required to comprehend and communicate information fluently within conversations and presentations e.g. to peers, supervisors, clients.
Memory	The ability to retrieve and recall information on demand that has been previously learned.	Able to recall information that is applied to work tasks on a regular basis as well as recall information that harder to remember because it is recalled infrequently.
Resilience	The ability to recover quickly from difficulties; toughness, grit.	Able to demonstrate self awareness and communicate accordingly to ensure you are able to recover quickly from difficulties and demonstrate toughness and grit on an ongoing basis.
Decision Making	The ability to consider relevant details/criteria and come to a conclusion.	Able to confidently and independently review information, consider appropriate methodologies (OI, industry accepted standards, etc.), identify conclusions, and explain rationale used.