

Job Task Analysis

Employer: **Stanislaus County** Occupation: **Company Contact:** Risk Management 1010 10th Street Modesto, California 95354 (209) 525-5770 Date: November 2014 Analysis Provided By: Lyle Andersen, PT, CWCE Andersen Physical Therapy, Inc. 3500 Coffee Road, Suite 3 Modesto, California 95355 (209) 549-4626

INTRODUCTION:

A complete job description is available through Stanislaus County Human Resources. The environmental factors, physical and functional demands for this Job Task Analysis were documented by Andersen Physical Therapy, Inc. The methodology for documentation consisted of on-site visits, using various measuring devices such as dynamometers and scales, as well as observation and interviews with employees and managers. A detailed record was made of the physical and functional demands of the job in terms of force pounds, weight, frequency, height, distance, anthropometric measurements, stamina, and degrees of range of motion. The determination of the frequencies of functional activities is based on standards provided by the National Institute for Occupational Safety and Health (NIOSH) and the Work Practice Guide for Manual Lifting (U.S. Department of Commerce, National Technical Information Service).

The Job Task Analysis is organized as follows: General work description; safety requirements; equipment; environmental factors; and physical/functional demands.

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GENERAL WORK DESCRIPTION:

The frequency of the following activities may vary according to the physical requirements of the specific job tasks that the employee may be required to perform at random intervals.

Under the general supervision of the department manager, Maintenance Engineer 1, 11, 111 perform semi-skilled and skilled maintenance, repair and construction of county office buildings, and equipment.

SPECIFIC DUTIES: Available through the Human Resources Department.

http://www.stancounty.com/riskmgmt/risk-dm-ita-class-sub-main.shtm

<u>Safety Requirements</u>: All employees are required to observe company safety procedures and standards to insure individual and collective safety, in addition to avoiding unnecessary risk to oneself, co-workers, customers, and property.

Equipment:

- 1. 2, 4, 6, 8, 10, 12, 14, 16 Safety Ladder
- 2. 20 Foot extension ladder
- 3. Belt sander
- 4. Boom lift
- 5. Chain saw
- 6. Code cutter
- 7. Computer
- 8. Cordless drill
- 9. Cutting torch
- 10. Demolition hammer
- 11. Drill press
- 12. Duplicator electronic testing equipment
- 13. Electric drain cleaning equipment
- 14. Electric manlift
- 15. Electrical airless point sewerage equipment
- 16. Electrical grinders
- 17. Electrical pipe thermometer
- 18. Electrical reciprocating saw
- 19. Electrical screw driver
- 20. Electrical wore pulling equipment
- 21. Electrician wire pulling (fishtape)
- 22. Forklift
- 23. Fri
- 24. Furniture dolly
- 25. Gas powered asphalt/concrete grinder/cutter
- 26. Golf cart
- 27. Hand saw
- 28. Hand truck
- 29. Hi-pressure washers (Water)
- 30. HVAC refrigerant re-charging equipment

- 31. HVAC refrigerant reclaiming equipment
- 32. Keyboard
- 33. Ladders, "Extension" and "A" frame
- 34. Manual hole hook (J-Hook)
- 35. MEGOHM Meter
- 36. Miscellaneous hand and power tool
- 37. Mouse
- 38. ORP Meter
- 39. Pallet jack
- 40. Palm sander
- 41. Pipe threadder
- 42. Piper bender
- 43. Plazma cutter
- 44. Pneumatic nail gun
- 45. Printer
- 46. Ricliner
- 47. Router
- 48. Scanner
- 49. Scissor lift
- 50. Sewer snake
- 51. Sheet metal brake
- 52. Shovel
- 53. Soil compacting equipment
- 54. Table saw
- 55. TDS Meter
- 56. Trenching equipment
- 57. Vacuum pumps
- 58. Vehicle
- 59. Welder (arc and gas)

All employees within the Maintenance Engineer I, II, III position are required to provide physical assistance for all weight and frequency requirement needs of all job tasks in order to maintain a safe work environment. Employees must be physically capable of working in any of the job tasks within the Maintenance Engineer I, II, III position.

ENVIRONMENTAL FACTORS



The following percentages are given in terms of an eight-hour workday:

 Seldom =
 1% - 2%
 Frequent =
 34% - 66%

 Occasional =
 3% - 33%
 Constant =
 67% - 100%

	ENVIRONMENTAL FACTORS	MAXIMUM FREQUENCY
1.	Unprotected heights:	Occasional
2.	Being around moving machinery:	Occasional
3.	Exposure to marked changes in temperature and humidity: outside temperatures may seasonally vary between 28-110 degrees.	Occasional
4.	Exposure to dust, fumes, smoke, gases, or other irritating substances (specify):	Seldom
5.	Driving: Vehicle, lifts	Occasional
6.	Exposure to excessive noise:	Seldom
7.	Exposure to radiant or electrical energy:	Occasional
8.	Exposure to solvents or chemicals:	Occasional
9.	Exposure to slippery or uneven walking surfaces:	Occasional
10.	Working below ground: Basement	Occasional
11.	Unusual fatigue factors:	Seldom
12.	Working with explosives:	Not Applicable
13.	Excessive vibration: Jack hammer, impact wrench	Seldom
14.	Working with hands in water or other substance: Hand protection is available	Not Applicable
15.	Working proximity:	Frequent Frequent
16.	Working inside:	Frequent
17.	Working outside:	Frequent

FUNCTIONAL ACTIVITIES



The frequency of the following activities may vary according to the physical requirements of the specific job tasks the employee may be required to perform at random intervals.

PHYSICAL AND FUNCTIONAL REQUIREMENTS

FREQUENCY DEFINITIONS	<u>SELDOM</u>	OCCASIONAL	FREQUENT	CONSTANT
Percent of the Day	1-2%	3-33%	34-66%	67-100%
Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Non Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Repetitive & Static Work	1-50 Reps	51-250 Reps	251-1,000 Reps	1,001-20,000 Reps

1.) PUSH: Pushing activities may require use of the back in conjunction with leg and arm musculature.

	MAXIMUM REQUIREMENT	
is:	Occasional	

0-10 pounds: Occasional
11-25 pounds: Occasional
26-35 pounds: Occasional
36-50 pounds: Seldom
51-75 pounds: Seldom

76-100 pounds: Seldom Maximum Force: 100 Pounds

Assistive Devices: 1, 2 or 4-Wheel Cart, Hand Truck. Additionally, one person's assistance is available with forces greater than 100 pounds.

Comments: Pushing is utilized with activities such as retrieving, returning, storing, adjusting, moving and/or transporting equipment, and supplies (e.g. cart, door, pump, pipe, motor, fixture, appliance, heat/air units, manual pallet jack, wrench, concrete tool, paint, saw, wheelbarrow). The employee exerts up to 100 pounds of force in a horizontal plane from waist to shoulder height of a distance up to 600 feet when performing job tasks (e.g. 1, 2 or 4-wheel cart; position and removing furniture/equipment/appliance; utilizing hand/power tool; demolition /construction/maintenance/repair of County owned equipment and infrastructure; nut/bolt placement/removal with wrench; concrete finishing, brush and roller painting, wood sawing/cutting; sweep, shovel).

2.) PULL: Pulling activities may require use of the back in conjunction with leg and arm musculature.

MAXIMUM REQUIREMENT

0-10 pounds: Occasional 11-25 pounds: Occasional 26-35 pounds: Occasional 36-50 pounds: Seldom 51-75 pounds: Seldom

76-100 pounds: Seldom Maximum Force: 100 Pounds

Assistive Devices: 1, 2 or 4-Wheel Cart, Hand Truck. Additionally, one or more person(s) assistance is available with forces greater than 100 pounds.

Comments: Pulling is utilized with activities such as retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. cart, door, pump, pipe, motor, fixture, appliance, heat/air units, manual pallet jack, wrenches, concrete tool, paint, saw, wheelbarrow).

The employee exerts up to 100 pounds of force in a horizontal plane between waist and shoulder height of a distance up to 600 feet when performing job tasks (e.g. 1, 2 or 4-wheel cart; reposition furniture/equipment/appliances; utilizing hand/power tool; demolition/construction/maintenance/repair of County owned equipment and infrastructure; nut/bolt placement/removal with wrench; concrete finishing, brush and roller painting, wood sawing/cutting; removing manhole covers with pole hook). Pushing is the preferred method of moving carts. Pull on manual drain hole cover with forces up to 75 lbs pounds. Mechanical lift is available.

3.) STAND-UP LIFT: Lifting weighted objects between floor and waist height.

MAXIMUM REQUIREMENT

0-10 pounds: Frequent
11-25 pounds: Occasional
26-35 pounds: Occasional
36-50 pounds: Occasional
51-75 pounds: Seldom

76-100 pounds: Not Required Maximum Force: 75 Pounds

Assistive Devices: Hoist, lift gate. Additionally one or more person(s) assistance is available with weights greater than 75 pounds.

Comments: A stand-up lift is utilized with activities such as retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. freon, ballast, paint, wood, wire, pipe, plastic, concrete, steel, pump, tool). The employee lifts items weighing between <1 pound and 75 pounds from/to the floor when performing job tasks (e.g. repair/maintenance/construction/demolition of County owned equipment and infrastructure; installation of fixtures, miscellaneous plumbing and electrical equipment/parts; heat/air equipment, appliance; 4x8 sheet rock, particle board, solid core wood veneer door, cabinet, 5-gallon bucket, miscellaneous hand and power tools, sewer snake, portable compressor; up to 60 to 75-pound bag of sand or concrete, extension ladder, welding component, portable welder; debris, spoils).

Safe lifting is performed by utilizing a posture of partial squatting and a straight back.

4.) LEVEL LIFT: Lifting weighted objects from between waist and chest height level for a maximum horizontal distance of up to four feet.

MAXIMUM REQUIREMENT

0-10 pounds: Frequent 11-25 pounds: Frequent 26-35 pounds: Occasional 36-50 pounds: Occasional 51-75 pounds: Seldom

76-100 pounds: Not Required Maximum Force: 75 Pounds

Assistive Devices: Forklift, 1, 2 or 4-Wheel Cart, Hand Truck. Additionally, one or more person(s) assistance is available with weights greater than 75 pounds.

Comments: A level lift is utilized with activities such as retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. freon, ballast, paint, wood, wire, pipe, plastic, concrete, steel, pump, tool). The employee lifts items weighing between <1 pound and 75 pounds when performing job tasks (e.g. repair/maintenance/construction/demolition of County owned equipment and infrastructure; installation; fixtures, miscellaneous plumbing and electrical equipment/parts; heat/air equipment, 4x8 sheet rock, particle board, solid core wood veneer door, cabinet, 5-gallon bucket, miscellaneous hand and power tools, sewer snake, portable compressor; up to 60 to 75-pound bag of sand or concrete, extension ladder, welding component, portable welder; door handle/lock; debris, spoils).

5.) WEIGHT CARRY: Carrying weighted objects between waist and chest height beyond a distance of four feet.

MAXIMUM REQUIREMENT

0-10 pounds: Frequent 11-25 pounds: Occasional 26-35 pounds: Occasional 36-50 pounds: Seldom

51-100 pounds: Not Required Maximum Force: 50 Pounds

Assistive Devices: Vehicle, forklift, 1, 2 or 4-Wheel Cart, Hand Truck. Additionally, one or more person(s) assistance is available with weights greater than 50 pounds.

Comments: Weight Carry is utilized with activities such as retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. miscellaneous hand or power tool; utility belt; miscellaneous plumbing and electrical product/part; ladder, paint). The employee carries items weighing between <1 pound and 50 pounds between 5 feet and 200+feet when performing job tasks (e.g. freon canister, vacuum pump, reclaim cylinder, utility belt; portable power and manual tool; miscellaneous items from general construction/demolition/repair of structures and equipment utilizing product made of wood, concrete, metal, plastic, chemical products or glass).

6.) OVERHEAD LIFT/PULL DOWN: Lifting weighted object from/to chest and overhead height level.

MAXIMUM REQUIREMENT

0-10 pounds: Occasional 11-25 pounds: Seldom 26-35 pounds: Seldom

36-100 pounds: Not Required Maximum Force: 30 Pounds

Assistive Devices: A vertical ladder, step ladder or step stool is available to bring items to eye or shoulder level.

Additionally, one or more person(s) assistance is available with weights greater than 30 pounds.

Comments: Overhead lift/pull down is utilized with activities such as retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. tool, pain roller/brush, wood, plumbing and electrical part, metal, wall material, bulb, filter). The employee lifts items weighing between <1 pound and 30 pounds to a maximum height of 84 inches when performing job tasks (e.g. overhead shelf; installation/demolition of sheet rock, operate manual and power tool; repair and maintenance of overhead equipment/fixture; removal or assembly of hardware, ballast/light bulb; wall/ceiling/door demolition, repair, maintenance and construction; half sheet of sheet rock, lumber, wire, filter).

Variables to overhead reaching will be the employee's height and anthropometric reach,

7.) OVERHEAD REACH:

MAXIMUM

FREQUENCY: Occasional

Comments: Overhead reach is performed to a maximum height of 84 inches when retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. ceiling tile, ballast, bulb, vent, insulation, conduit, fixture, filter; inspection).

A ladder (appropriate height) or step stool may be utilized to bring items to eye or shoulder level. Variables to overhead reaching will be the employee's height and anthropometric reach.

8.) FORWARD REACH:

MAXIMUM

FREQUENCY: Frequent

Comments: Forward reach is performed up to a distance of 28 inches when retrieving, returning, adjusting, moving, operating and/or utilizing equipment and supplies (e.g. plumbing, electrical, carpentry, painting; operation of hand or power tool; bulb, filter change; drive vehicle; operate forklift; replacing/repairing door lock; bench work, concrete finishing; shovel, rake, hoe; construction/demolition/maintenance and repair of structure, equipment and grounds; desktop work; worksite inspection).

The degree of elbow extension required for reaching will vary according to the employee's anthropometric reach.

9.) **STOOP**:

MAXIMUM

FREQUENCY: Seldom

Comments: Stooping is performed when retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. plumbing, electrical, carpentry, painting; operation of hand or power tool; replacing/repairing door lock; bench work, concrete finishing; shovel, rake, hoe; construction/demolition/maintenance and repair of structure, equipment and grounds; worksite inspection).

Variable to stooping will be the employee's height. Stooping of the head, trunk and knees can be minimized or avoided by substituting alternate positions of squatting, kneeling or bending when performing job tasks.

10.) SOUAT: (Unloaded)

MAXIMUM

FREQUENCY: Seldom

Comments: Squatting is performed when performing specific job tasks (e.g. sewer line, plumbing, flooring, electrical, concrete).

Squatting may be minimized or avoided by substituting alternate positions of bending or kneeling. Partial squatting is a preferred lifting posture.

11.) FORWARD BEND:

MAXIMUM

FREQUENCY: Frequent

Comments: Bending forward at the waist is performed when retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. plumbing, electrical, carpentry, painting; operation of hand or power tool; replacing/repairing door lock; bench work, concrete finishing; shovel, rake, hoe; construction/demolition/maintenance and repair of structure, equipment and grounds; worksite inspection). Maximum forward trunk flexion required is 60 degrees.

Employee may minimize or avoid excessive forward bending of the trunk up to 80 degrees by using alternate positions of bending at the hips, kneeling, half kneeling, stooping, sitting or squatting.

12.) **TWIST**:

MAXIMUM

FREQUENCY: Occasional

Comments: Twisting at the waist is performed when retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. plumbing, electrical, carpentry, painting; operation of hand or power tool; drive vehicle; construction/demolition/maintenance and repair of structure, equipment and grounds replacing/repairing door lock; bench work, concrete finishing; shovel, rake, hoe).

Twisting at the waist may be minimized by turning the whole body, including the feet.

13.) **TURN**:

MAXIMUM

FREQUENCY: Occasional

Comments: Turning is performed when retrieving, returning, storing, adjusting, moving and/or transporting equipment, controls, and supplies (e.g. plumbing, electrical, carpentry, painting; operation of hand or power tool; replacing/repairing door locks; bench work, concrete finishing; shovel, rake, hoe; construction/demolition/maintenance and repair of structure, equipment and grounds).

14.) KNEEL:

MAXIMUM

FREQUENCY: Occasional

Comments: Kneeling is performed when performing specific job tasks (e.g. trench, sewer line, plumbing, flooring, electrical, concrete work; inspection).

Kneeling may be minimized or avoided by substituting alternate positions of bending, sitting, squatting, or half kneeling.

15.) CRAWL:

MAXIMUM

FREQUENCY: Seldom

Comments: Crawling is performed when retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. inspection, maintenance, trouble-shooting; entering low ceiling space within a structure, under equipment; attic).

16.) STAIR CLIMB:

MAXIMUM

FREQUENCY: Seldom

Comments: Stair climb is required in order to go to/from elevated floors, attic. Maximum number of 60 steps is climbed.

Ramps and elevators are available at many public areas.

17.) LADDER CLIMB:

MAXIMUM

FREQUENCY: Occasional

Comments: Ladder climbing is performed onto/off of ladders or steps to access infrastructure, equipment, and supplies (e.g. 2, 4, 6, 8, 10, 12, 14, 16 foot safety ladder, extension ladder) located up to 20-feet above floor level (e.g. rooftop; inspection; bulb/filter/ballast change; nail, paint; construction/repair/demolition/maintenance of infrastructure).

A man lift is available for most routine or schedule exterior work at heights above 20 feet.

Variables to overhead climbing will vary according to the employee's height and anthropometric reach.

18.) WALK:

MAXIMUM

FREQUENCY: Frequent

Comments: Walking is performed when retrieving, returning, storing, adjusting, moving and/or transporting equipment and supplies (e.g. to/from job site/vehicle/office; inspection, demolition, construction projects; preventative maintenance and repair of the facilities and infrastructure). Walking length varies between 3 feet and 600+ feet depending on job task.

19.) SIT:

MAXIMUM

FREQUENCY: Occasional

Comments: Sitting is performed for a maximum of 45-minute intervals when performing job tasks (e.g. drive vehicle; operate forklift; sit for meeting with collaborating agency and/or colleague; training).

20.) STAND: (Static)

MAXIMUM

FREQUENCY: Frequent

Comments: Static standing is performed for a maximum of 30-minute intervals when retrieving, returning, storing, adjusting, equipment and supplies (e.g. inspection; construction/demolition, repair/maintenance of infrastructure and equipment).

21.) BALANCE:

MAXIMUM

FREQUENCY: Constant

Comments: Adequate balance is required for safe walking, standing, climbing, reaching and lifting.

22.) HAND/FOOT CONTROL:

MAXIMUM REQUIREMENT

HAND:

Right: Frequent
Left: Frequent
Both: Occasional
Either: Frequent

FOOT:

Right: Occasional
Left: Occasional
Both: Not Required
Either: Not Required

Comments: Hand controls are utilized to operate equipment (e.g. vehicle, tool, forklift) when adjusting, controls (e.g. drive vehicle, operate forklift, power tool; door latch/knob/lever; valve).

Foot controls are utilized to operate equipment (e.g. drill press, sewer snake, vehicle, forklift).

23.) UPPER AND LOWER EXTREMITY COORDINATION:

MAXIMUM REQUIREMENT

Simple Grasp: Frequent
Firm Grasp: Frequent
Occasional
Eye/Hand Coordination: Frequent
Hand/Foot Coordination: Occasional

Comments: Grasping and coordination activities are performed when retrieving, returning, storing, adjusting, operating, moving and/or transporting equipment, controls and supplies (e.g. construction, demolition, maintenance and repair).

Simple grasping is utilized to perform job tasks (e.g. lift and manipulate objects weighing less than 5 pounds; drive vehicle).

Firm grasping is utilized to perform job tasks (e.g. lift and handle objects weighing 5 pounds or greater; operate hand and power tool, forklift).

Fine manipulation is utilized to perform job tasks (e.g. keyboard, mouse, handwrite; door lock assembly, nuts/bolts/washers/screws, wire; paint; measurement; operate hand and power tool).

Eye/hand coordination is utilized to perform job tasks (e.g. keyboard, mouse, handwrite; door lock assembly, nuts/bolts/washers/screws, wire; paint; measurement; operate hand and power tool, forklift; drive vehicle).

Hand/foot coordination is utilized to perform job tasks (e.g. drive vehicle, operate forklift; shovel).

Depending on individual hand dominance, one hand may be used more frequently than the other when performing job tasks.

24.) **CERVICAL (NECK) MOVEMENT**:

MAXIMUM REQUIREMENT

Static Neutral Position: Frequent

Flexing: Frequent
Rotating: Frequent
Extending: Occasional

Comments: Neck movement is required when performing job tasks (e.g. operate hand and power tool during construction, demolition, maintenance, inspection and repair of equipment, appliance and infrastructure; drive vehicle, operate mobile power equipment; worksite inspection; desktop work).

Participation in the observation of the work environment allows for safe working conditions. Full cervical range of motion is required to safely perform the job tasks.



STANISLAUS COUNTY OFFICE OF EDUCATION JOB TASK ANALYSIS SUMMARY

FREQUENCY DEFINITIONS	<u>SELDOM</u>	OCCASIONAL	FREQUENT	CONSTANT
Percent of the Day	1-2%	3-33%	34-66%	67-100%
Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Non Material Handling	1-4 Reps	5-32 Reps	33-250 Reps	251-2,000 Reps
Repetitive & Static Work	1-50 Reps	51-250 Reps	251-1,000 Reps	1,001-20,000 Reps

The following is a summary of the physical demands of the Job Task Analysis that were obtained for the position of:

Maintenance Engineer

Functional Activities	Maximum Requirements	Functional Activities	Maximum Requirements
Push (Force)	100 pounds	Stair Climb	Seldom
Pull (Force)	100 pounds	Ladder Climb ¹	Occasional
Stand Up Lift1	75 pounds	Walk ¹	Frequent
Level Lift1	75 pounds	Sit ¹	Occasional
Weight Carry 1	50 pounds	Stand (Static)	Frequent
Overhead Lift/Pull Down	30 pounds	Balance	Constant
Overhead Reach	Occasional	Hand Control	Frequent
Forward Reach	Frequent	Foot Control	Occasional
Stoop	Seldom	Simple Grasp ¹	Frequent
Squat (Unloaded)	Seldom	Firm Grasp ¹	Frequent
Forward Bend ¹	Frequent	Fine Manipulation ¹	Occasional
Twist	Occasional	Eye/Hand Coordination	Frequent
Turn ¹	Occasional	Hand/Foot Coordination	Occasional
Kneel	Occasional	Cervical (neck) Movement	Frequent
Crawl	Seldom		

¹ The critical demands of the job.

	Date:		Date:	
		Contact Person Title		Lyle Andersen, PT, CWCE Preparer Signature
	Date:		Date: 3/13/15	5
_	Date:	Contact Person	Date: 3/13/15	Contact Person Title GSA -ASST, DIAL.

LA/ga