

EDITED TASK LISTING

CLASSIFICATION: SENIOR MECHANICAL ENGINEER

NOTE: Each position within this classification may perform some or all of these tasks.

Task Statements	
1.	Prepare mechanical engineering drawings, specifications and cost estimates in connection with design and construction of a variety of projects to ensure code compliance, obtain California state Fire Marshal approval and ensure accurate construction utilizing Computer Aided Drafting and Design (CADD) and Revit computer software and applicable California Code of Regulations (CCR) as required.
2.	Perform technical design review on projects at various stages in order to ensure conformity to building codes, departmental design criteria guidelines, and construction suitability utilizing personal technical knowledge and experience as needed and/or directed.
3.	Perform material take-off and cost estimates of mechanical work on a wide variety of projects to establish costs utilizing various resources (e.g. computer hardware and software, personal experience, etc.), required codes and acceptable industry construction standards as needed and/or directed.
4.	Review purchase requisitions for construction work regarding mechanical equipment for a wide variety of projects to ensure conformity to plans and specifications utilizing personal experience, plans and specifications, etc. as needed and/or directed.
5.	Perform inspections of mechanical engineering equipment and systems to ensure their construction and/or installation conform to plans, specifications and applicable codes utilizing personal experience, tools, plans and specifications, etc. as required by the construction schedule.
6.	Conduct specialized investigations and technical studies producing complete and comprehensive written reports and correspondence and make recommendations on mechanical engineering issues to comply with program needs utilizing various resources (e.g. computer hardware and software, personal experience, etc.) and required codes as needed and/or directed.
7.	Provide mechanical engineering construction support on a wide variety of projects to ensure conformity of plans and specifications utilizing personal experience, plans, specifications, technical knowledge, required codes, etc. as needed and/or directed.
8.	Perform field surveys of existing mechanical engineering conditions for various construction projects in order to produce design documents utilizing various resources (e.g. computer hardware and software, hand drafting tools, personal experience, etc.) as needed and/or directed.
9.	Represent the department in formal or informal settings (meetings, conferences, hearings, legal depositions, etc.) regarding mechanical engineering matters in order to obtain or provide information and/or represent the interest of the department utilizing interpersonal skills, professionalism, personal knowledge, etc. as needed and/or upon request.
10.	Interpret and apply laws, rules, regulations, departmental policies and procedures, etc. regarding mechanical engineering issues in order to gain an understanding and apply as needed and/or upon request.

Tasks highlighted in bold text are not currently on the SPB classification specification

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11.	Train others in the design and preparation of mechanical aspects of drawings, specifications, cost estimates, construction inspections and field surveys to ensure a capable workforce utilizing various resources (e.g. computer hardware and software, hand drafting tools, personal experience, etc.) and required codes as needed and/or directed.
12.	Perform value engineering on mechanical aspects of projects to determine various design alternatives obtaining the best value for a project utilizing necessary resources (e.g. computer hardware and software, personal experience, etc.) and required codes as needed and/or directed.
13.	Report current project status to supervisor in order to provide regular updates utilizing personal experience and various resources (e.g. time estimate skills, knowledge of prior project history, etc.) as required by departmental policies and guidelines.
14.	Manage projects contracted to outside architects and engineers to produce construction documents which meet the code and departmental guidelines utilizing project management skills, negotiation skills, personal experience and technical knowledge such as project scoping, fee determination and scheduling as needed and/or directed.
15.	Act in the absence of supervisor to ensure continued efficient operation of the mechanical engineering unit utilizing personal experience and knowledge as needed.
16.	Assign and schedule other engineers specific tasks/projects impacting the mechanical engineering work to ensure projects are fully completed and on time utilizing personal experience, technical knowledge, personal computer, etc. as needed.
17.	Review other mechanical engineer's plans, specifications, and reports in order to ensure conformity to building codes, departmental design criteria guidelines and construction suitability utilizing personal experience and knowledge as needed and/or upon request.
18.	Coordinate with other disciplines and team members to prevent construction conflicts, change orders, potential additional cost and/or litigation utilizing effective communication skills and tools (telephone, personal computer, meetings, etc.) as required.
19.	Consult with stakeholders on a variety of engineering and/or construction issues (e.g. procurement documents, design of projects, service requests, etc.) to provide guidance, information and recommendations utilizing various resources (e.g. computer hardware and software, personal experience, required codes, etc.) as needed.
20.	Perform Life Cycle cost analysis for various projects to determine the optimal proposed design which meets the department's ultimate goal and standard utilizing personal knowledge, computer software, effective communication and writing skills as required.
21.	Propose additional language and/or changes to the existing mechanical, plumbing and energy codes to better meet the construction or program requirements of the department utilizing technical knowledge, effective communication and writing skills, etc. as needed and/or directed.

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22.	Propose changes to the existing design criteria guidelines of the department and/or obtain waivers to better meet the construction or program requirements of the department utilizing technical knowledge, effective communication and writing skills, etc. as needed and/or directed.
23.	Create standard design drawings and specifications for buildings which share a common design built at various locations to reduce design time and construction cost utilizing various resources (e.g. personal knowledge, computer software and hardware, departmental policies and procedures, etc.) as needed and/or directed.
24.	Provide professional engineering support for the institutions that are coordinating with local and other state agencies to obtain permits and agreements in order to provide guidance and technical information utilizing personal experience, technical knowledge, plans, specifications and required codes as needed and/or directed.
25.	Coordinate and prioritize tasks for timely completion of projects to produce monthly management reports utilizing the project schedule and assignment schedule as needed and/or directed.
26.	Travel to state institution to investigate existing situations regarding mechanical equipment operation and to help determine cause and resolution of specific issues utilizing available mode of transportation as required.
27.	Specify institutional type, vandal proof and suicide resistant equipment to ensure the safety and security of the occupant and prevent unnecessary repairs and/or replacement utilizing personal knowledge, departmental policies and procedures, design documents, etc. as needed.
28.	Perform mechanical engineering calculations such as heating/cooling load, plumbing, Title 24, piping and pumping systems, etc. to enable proper selection of equipment and piping utilizing personal knowledge, computer software, etc. as the project demands.
29.	Select mechanical engineering equipment such as heating, air conditioning, ventilation, refrigeration, plumbing, hydronics, etc. to ensure the correct equipment components are included in the design utilizing personal knowledge, computer software, etc. as the project demands.
30.	Conduct sustainability evaluations for green building design such as water and energy conservation to reduce resource consumption utilizing applicable codes, state laws, etc. as mandated by government.