

GUIDANCE MANUAL



**Board of Registration for
Architects, Engineers
and Land Surveyors**

August 2016 Edition

Board of Registration for Architects, Engineers and Land surveyors

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Board of Registration for Architects, Engineers and Land surveyors

PURPOSE

This Guidance Manual is prepared for use by government, building, planning, and public officials as well as architects, engineers, land surveyors, and landscape architects. Published by the Alaska State Board of Registration for Architect, Engineers, and Land Surveyors (AELS Board), the intent of this Guidance Manual is to aid in understanding laws that govern architecture, engineering, land surveying, and landscape architecture.

The Alaska Statute, Regulations, Municipal Building and Zoning Codes, and Ordinances will take precedence over any conflict with information contained in this manual.

INTRODUCTION

Professional registration laws are meant to work together with Regulations, Building and Zoning Codes, and Ordinances to protect the Public's health, safety, and welfare. Jurisdictions and Boards, (such as the AELS Board), exist to protect the Public from unsafe structures and site conditions. Building Officials promulgate and enforce building code requirements to protect Public health and safety. Planning and Public Safety Officials enforce similar regulations.

This Guidance Manual focuses on basic information and is not intended to address all questions concerning the practice of architecture, engineering, land surveying, and landscape architecture. Professionals in these disciplines must complete education criteria, satisfy training standards, and pass rigorous technical and practice examinations (Alaska Statute 08.48; AELS Regulation 12 AAC 36). The Public is protected through compliance and enforcement by Alaska State Registration Officials.

Architects, engineers, land surveyors, and landscape architects are charged with safeguarding the Public's health, safety, and welfare through execution of their professional responsibilities and duties. This Guidance Manual contains information related to the application of sound judgment, ethical management, and proper execution anticipated by professionals regulated by the AELS Board. This Guidance Manual contains items found within the Alaska Statute as well as recommended minimum practices and AELS Board policies. The Guidance Manual attempts to address frequently asked questions and does not modify any statutory requirements.

It is recommended that aArchitects, engineers, land surveyors, and landscape architects are recommended to contact local building, planning, and public safety officials with regard to specific site and building regulations, ordinances, codes, and permits and to address requirements that may vary between jurisdictions. For further information or assistance concerning AELS Board requirements, contact the AELS Board or the Division of Corporation, Business and Professional Licensing:

AELS Board
PO Box 110806
Juneau, AK 99811-0806
P: 907.465.2540
907.465.1676
F: 907.465.2974

<http://commerce.alaska.gov/dnn/Portals/5/pub/aelsstatutesregs.pdf>

Board of Registration for Architects, Engineers and Land surveyors

Division of Corporations, Business and Professional Licensing
Atwood Building
550 West 7th Avenue, Suite 1500
Anchorage, AK 99501
P: 907.269.8160
F: 907.269.8156

The Alaska State Board of Registration for Architects, Engineers, Land Surveyors, and Landscape Architects website:

<http://commerce.alaska.gov/dnn/cbpl/ProfessionalLicensing/BoardofArchitectsEngineersandLandSurveyors.aspx>

x

Current professional's registrations may be checked by querying the division database at:

<http://commerce.alaska.gov/CBP/Main/SearchInfo.aspx>

The State Fire Marshal is an Alaska State Building Official who conducts plan reviews for all construction outside of exempted occupancies that have been granted deferrals. The State Fire Marshal adopts the building code as authorized by AS 18.70 and defined by 13 AAC 50.55. To contact the State Fire Marshal:

State Fire Marshal
State of Alaska
Division of Fire Protection
5700 East Tudor Road
Anchorage, AK 99507-1225
P: 907.269.5491

Board of Registration for Architects, Engineers and Land surveyors

Building, Planning and Puoblic Safety Officials

Municipality of Anchorage

4700 S. Bragaw St.
Anchorage, AK 99507
Phone: (907) 343-8301

City of Kenai

210 Fidalgo Ave, Suite 200
Kenai, AK 99611
(907) 283-7353

City of Soldotna

177 N. Birch St.
Soldotna, AK 99669
(907) 262-9107

City of Homer

3575 Heath St.
Homer, AK 99603
(907) 235-3170

City of Whittier

P.O. Box 608
Whittier, AK 99693
(907) 472-2340

City of Unalaska

P.O. Box 610
Unalaska, AK 99692
(907) 581-1260

City of Fairbanks

800 Cushman St.
Fairbanks, AK 99701
Phone: (907) 459-6720

City of Kodiak

710 Mill Bay Rd.RM. 208
Kodiak, AK 99615
(907) 486-8070

City of Sitka

100 Lincoln St.
Sitka, AK 99835
(907) 747-1807

City of Valdez

P.O. Box 307
Valdez, AK 99686
(907) 835-4313

City of Palmer

645 E. Cope Industrial Way
Palmer, AK 99645
(907) 745-2371

Kenai Peninsula Borough

144. N. Binkley Street
Soldotna, AK 99669
(907) 262-4441

City of Juneau

155. S. Seward Street
Juneau, AK 99801
(907) 586-0770

City of Seward

P.O. Box 1397
Seward, AK 99644
(907) 224-4071

City of Ketchikan

2930 Tongass Ave.
Ketchikan, AK 99901
(907) 228-4737

City of Cordova

P.O. Box 1210
Cordova, AK 99574
(907) 424-6200

City of North Pole

125 Snowman Lane
North Pole, AK 99705
(907) 488-2281

City of Wasilla Planning Department

290 East Herring Ave.
Wasilla, AK 99654-7091
(907) 373-9020

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DEFINITION OF ARCHITECTURE, ENGINEERING, LAND SURVEYING AND LANDSCAPE ARCHITECTURE

Alaska State Statute 08.48.341 defines architecture, engineering, land surveying and landscape architecture as follows:

(11) “practice of architecture” means professional service or creative work in the design of buildings, the teaching of advanced architectural courses in institutions of higher learning, consultation, investigation, evaluation, planning, design, and professional observation of construction of public or private buildings, works, or projects, and architectural review of drawings and specifications by regulatory agencies; “practice of architecture” may by regulation of the board include mechanical, electrical, or structural design of minor importance;

(12) “practice of engineering” means professional service or creative work, the adequate performance of which requires the specialized knowledge of applied mathematics and sciences, dealing with the design of structures, machines, equipment, utilities systems, materials, processes, works, or projects, public or private; the teaching of advanced engineering courses in institutions of higher learning; the direction of or the performance of engineering surveys, consultation, investigation, evaluation, planning, and professional observation of construction of public and private structures, works, or projects and engineering review of drawings and specifications by regulatory agencies; “practice of engineering” may by regulation of the board include architectural building design of minor importance, but it does not include comprehensive architectural services;

(13) “practice of land surveying” means the teaching of land surveying courses at an institution of higher learning, or any service or work the adequate performance of which involves the application of special knowledge of the principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence of the act of measuring and locating land, geodetic and cadastral surveys for the location and monumentation of property boundaries, for the platting and planning of land and subdivisions of land, including the topography, alignment, and grades for streets, and for the preparation and perpetuation of maps, record plats, field note records and property descriptions that represent these surveys;

(14) “practice of landscape architecture” means professional services or creative work in site investigation, reconnaissance, research, planning, design, and preparation services related to drawings and construction documents, observation of construction, and location, arrangement, and design of incidental and necessary tangible objects and features for the purpose of

(A) preservation and enhancement of land uses and natural land features;

(B) location and construction of aesthetically pleasing and functional approaches for structures, roadways, and walkways;

(C) establishing or maintaining trails, plantings, landscape irrigation, landscape lighting, and landscape grading; or

(D) generalized planning of the development of land areas in a manner that is sensitive to the area’s natural and cultural resources;

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Unless specifically exempt under **AS 08.48.331** all projects (public, commercial and private) which require the involvement of architects, engineers, land surveyors and landscape architects, must utilize only registered professionals.

AS 08.48 EXEMPTIONS

NOTE: The State of Alaska exempts the following activities from the licensing regulations under **AS 08.48.331**, which reads

Sec. 08.48.331. Exemptions.

(a) This chapter does not apply to

(1) a contractor performing work designed by a professional architect, engineer, or landscape architect or the supervision of the construction of the work as a supervisor or superintendent for a contractor;

(2) workers in building trades crafts, earthwork, groundskeeping, or nursery operations, and superintendents, supervisors, or inspectors in the performance of their customary duties;

(3) an officer or employee of the United States government practicing architecture, engineering, land surveying, or landscape architecture as required by the person's official capacity;

(4) an employee or a subordinate of a person registered under this chapter if the work or service is done under the direct supervision of a person registered under this chapter;

(5) associates, consultants, or specialists retained by a registered individual, a partnership of registered individuals, a corporation, a limited liability company, or a limited liability partnership authorized to practice architecture, engineering, land surveying, or landscape architecture under this chapter, in the performance of professional services if responsible charge of the work remains with the individual, the partnership, or a designated representative of the corporation, limited liability company, or limited liability partnership;

(6) a person preparing drawings or specifications for

(A) a building for the person's own use and occupancy as a single family residence and related site work for that building;

(B) farm or ranch buildings and their grounds unless the public health, safety, or welfare is involved;

(C) a building that is intended to be used only as a residence by not more than:

(i) four families and that is not more than two stories high and the grounds of the building; or

(ii) two families and that is not more than three stories high and the grounds of the building, if the building complies with any applicable building or residential code adopted by a municipality where the building is located;

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(D) a garage, workshop, or similar building that contains less than 2,000 square feet of floor space to be used for a private noncommercial purpose and the grounds of the building;

(7) a specialty contractor licensed under AS 08.18 while engaged in the business of construction contracting or designing systems for work within the specialty to be performed or supervised by the specialty contractor, or a contractor preparing shop or field drawings for work that the specialty contractor has contracted to perform;

(8) a person furnishing drawings, specifications, instruments of services, or other data for alterations or repairs to a building or its grounds that do not change or affect the structural system or the safety of the building, or that do not affect the public health, safety, or welfare;

(9) a person who is employed by a postsecondary educational institution to teach engineering, architectural, or landscape architectural courses; in this paragraph, "postsecondary educational institution" has the meaning given in AS 14.48.210;

(10) an officer or employee of an individual, firm, partnership, association, utility, corporation, limited liability company, or limited liability partnership, who practices engineering involved in the operation of the employer's business only, and further provided that neither the employee nor the employer offers engineering services to the public; exclusions under this paragraph do not apply to buildings or structures whose primary use is public occupancy;

(11) a person while involved in revegetation, restoration, reclamation, rehabilitation, or erosion control for disturbed land;

(12) a person while maintaining or directing the placement of plant material;

(13) an employee, officer, or agent of a regulatory agency of the state or a municipality when reviewing drawings and specifications for compliance with the building codes of the state or a municipality if the drawings and specifications have been signed and sealed by a professional architect or professional engineer or the preparation of the drawings and specifications is exempt under this section from the requirements of this chapter; in this paragraph, "building codes" includes codes relating to building, mechanical, plumbing, electrical, and fire standards.

(b) The requirement to be registered as a landscape architect under this chapter only applies to a person who practices an aspect of landscape architecture that the board has determined affects the public health or safety.

12 AAC 36.069. STANDARDS FOR REGISTRATION AS A LANDSCAPE ARCHITECT.

In accordance with **AS 08.48.331(b)**, and except as exempted in **AS 08.48.331(a)**, design or creative work involving any of the following constitutes the practice of an aspect of landscape architecture that affects the public health or safety and thus requires registration as a landscape architect:

- (1) grading, clearing, or shaping of land;
- (2) landscape irrigation;
- (3) outdoor planting plans
- (4) outdoor play apparatus;
- (5) outdoor structures.

Unless specifically exempt under **AS 08.48.331** all projects (public, commercial and private) which require the involvement of architects, engineers, land surveyors and landscape architects, must utilize only registered professionals.

12 AAC 36.195. SITE ADAPTATION AND FIELD ALTERATIONS OF SEALED DOCUMENTS

Except as specified in this section, a person may not alter, or contribute to the altering of, any document that has been sealed by a registrant authorized under AS 08.48. A registrant may site adapt or field alter in this state sealed documents prepared by another registrant of the same discipline if the registrant

(1) has written permission

(A) to adapt or alter the sealed documents from the registrant who sealed the original sealed documents; or

(B) from the legal owner of the original sealed documents; the legal owner of the original sealed documents must have written proof of ownership of the sealed documents from the registrant who sealed the documents;

(2) reviews the sealed documents and makes all necessary revisions to bring the sealed documents into compliance with applicable codes, regulations, and job-specific requirements;

(3) affixes to the calculations of the

(A) site adapted documents a sealed certification, "I certify that I have reviewed the relevant calculations for the site adapted documents in accordance with 12 AAC 36.185", or the registrant shall independently prepare and seal all calculations for the site adapted documents; or

(B) field altered documents a sealed certification, "I certify that I have reviewed the relevant calculations for field altered documents in accordance with 12 AAC 36.185 and that the alterations will have no significant effect on other design considerations of the originally sealed documents", or the registrant shall independently prepare and seal all additional calculations for field adapted documents:

(4) reissues the sealed documents after review with the title block and seal of the registrant performing the site adaptation, or in the case of field altered documents have provided additional sealed drawings with the title block and seal of the registrant performing the work; and

(5) maintains professional control over the use of the site-adapted or field altered sealed documents as if they were any other original sealed documents of the registrant and maintains the sealed documents on file.

SEALING OR STAMPING WORK OUTSIDE OF EXPERTISE IS NOT PERMITTED

REFER TO:

**AS 08.48.221
12 AAC 36.185**

SUMMARY SEALING PROFESSIONAL WORK

The law and applicable codes in Alaska have requirements that professional submissions must be sealed by the professional who prepared them and/or supervised their preparation. Alaska has specific laws requiring that drawings used for construction bear the seal of a registered architect, engineer, land surveyor and/or landscape architect as appropriate. The International Building Code as adopted by **13 AAC 50-55** also contains this requirement.

Registered architects, engineers, land surveyors and landscape architects are responsible for their professional design services. The public, as well as building officials, rely on their professional expertise. As a result, professional submissions such as drawings, specifications and calculations should clearly show the identity of the professional who prepared them by having affixed a seal, which is signed and dated, and otherwise complying with the requirements of state law. Without proper professional identification, ultimate responsibility for any deficiencies may not be clear.

The State Fire Marshal or the designated building official must require that all drawings have either the seal of an architect, engineer, land surveyor or landscape architect as appropriate, or have notation on the drawings and/or building permit applications noting the reason for the lack of a seal or the state law exempting the preparation of the drawings by registered professionals. **(AS 08.48.331)**

Architects, engineers, land surveyors and landscape architects as design professionals are responsible for performing design services within their area of expertise. All design work so performed shall be sealed and signed as specified in **12 AAC 36.185(a)(3)**.

Registered professionals may not perform design services outside their area of expertise or registration. They shall not seal work performed by others unless they were prepared under the registrants' direct supervision. Sealing plans for which you do not have the expertise and registration is a violation of **AS 08.48**.

The preparation of and the sealing, signing and dating of plans, documents or calculations by an out of state individual who is not registered in the State of Alaska is a violation of **AS 08.48**.

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STAMPING & SIGNING OF PLANS BY REGISTERED ARCHITECTS, ENGINEERS, SURVEYORS AND LANDSCAPE ARCHITECTS

The following policy is presented as the minimum acceptable standard for the sealing and submittal of drawings and documents: All final documents must include a seal, a signature and a date. An electronic image of the signature may be used over the seal if the Registrant or the Owner of the documents retains an original copy of the documents, accessible for later reference, that has either:

- 1) An original hand signature over the seal; or
- 2) Software in place that will automatically remove or modify the electronic image of the signature if the document is modified.

Signatures shall be located over the Seals. Dates shall be included by electronically or manually inserting them within the seals or within 2” of the seals.

Specifically, drawings, specifications or other documents shall be sealed and signed as follows:

1. Final Drawings: Each sheet of final drawings approved for construction shall bear the signed and dated seal of the responsible professional(s) (i.e., architect, engineer, surveyor, landscape architect). Cover sheets that do not include design elements do not require a seal.
2. Preliminary Documents do not necessarily require stamping and signing. If they are, they shall also be clearly identified as Preliminary Documents.
3. Record Drawings show changes that occur to the final drawings during construction. If combined with Specifications, they are referred to as Record Documents. The Contractor is required to record changes to the final drawings resulting from Change Orders, Field Orders, etc. by marking up the final drawings and then conveying them to the Owner. These do not necessarily require stamping and signing.
4. As Built Surveys are prepared after construction to re-establish horizontal and vertical control points, locate structures and improvements and show dimensions. These are also referred to as Works-as-Executed by the Contractor. They do not necessarily require stamping and signing.
5. Field Surveys are often erroneously called “As Builts” resulting in confusion. They show property boundaries, features, topography, vegetation and the like. These do not necessarily require stamping and signing.
6. Specifications that accompany final drawings carry with them the stamping and signing of the various professionals from the final drawings and do not necessarily require further stamping and signing. For Documents such as Soils Reports and other Required Reports and stand-alone Specifications that are not accompanied by plans, a signed and dated seal must be on the front page.

Shop Drawings and Field Drawings are prepared by contractors, subcontractors or vendors that show how a particular aspect of the work is to be fabricated and installed in the work. Shop drawings and field drawings are not contract documents; they do, however, demonstrate how an aspect of the work will satisfy the contract documents. They complete the information cycle between drawings prepared by licensed professionals and the actual construction. Shop Drawings and Field Drawings do not require a seal, signature and date unless an Alaska Registered Professional prepares them.

FREQUENTLY ASKED QUESTIONS

- 1. I have a set of drawings sealed and signed by an engineer, architect, land surveyor and landscape architect registered in a state other than Alaska. Does the plan submittal meet the requirements for a design professional in Alaska?**

No. Only design professionals currently registered in the State of Alaska have a legal standing in the state. Professionals registered in other states must obtain registration in Alaska prior to offering or initiating any design work within Alaska unless exempt under **AS 08.48.331, Exemptions**
- 2. Can an Alaska registrant take responsibility for a design done by an out-of-state registrant not registered in Alaska?**

Yes, if they follow the requirements under **12 AAC 36.195, for Site Adaptation and Field Alteration of Sealed Documents.**
- 3. Can an owner, builder, or contractor make changes to drawings prepared by an architect, engineer, land surveyor, or landscape architect?**

No. When drawings are prepared by an Alaska registrant no changes may be made except by the professional who prepared the drawings or under the provisions of **12 AAC 36.195, Site Adaptation and Field Alteration of Sealed Documents.**
- 4. May an Alaska registrant make changes to drawings prepared by another Alaska registrant?**

No, except as provided by **12 AAC 36.195, Site Adaptation and Field Alteration of Sealed Documents.**
- 5. May an engineer registered in Alaska prepare and stamp architectural plans?**

No. Registered professionals may only practice within their area of expertise and registration.
- 6. May an architect registered in Alaska prepare and stamp engineering documents?**

No. Registered professionals may only practice within their area of expertise and registration. [Incidental practice has not been defined.]
- 7. May an engineer, architect or land surveyor prepare and stamp landscape architectural plans?**

No, not unless exempted under **AS 08.48.331, Exemptions.** Registered professionals may only practice within their area of expertise and registration.
- 8. May an engineer whose experience is limited to roadway design stamp structural plans for a high rise building?**

No. Registered professionals may only practice within their area of expertise and registration.
- 9. Can an engineer's calculations be used as the only documents for construction work?**

No. The engineering analysis calculation does not provide a complete description of the project, for construction purposes.
- 10. Do shop drawings have to be stamped by an engineer, architect, or landscape architect and submitted to the building official for approval?**

No. Typically shop drawings are intended as contractor or fabricator details that support the original design work. These are not typically part of the building department approved design documents. The contract specifications for a given project may require stamped shop drawings.

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11. What are examples of component, supplemental designs or shop drawings which are required to be sealed by a design professional when submitted to the building official for approval?

This is just a small list of the examples:

- a) Prefabricated metal buildings
- b) Roof truss systems (complete system)
- c) Post-tension or pre-stress designs
- d) An alternate to original submittal
- e) Component or system substitution which substantially changes scope of work or code application
- f) Precast concrete building components
- g) Irrigation components that protect domestic water supplies

12. Can a land surveyor prepare and submit plot and grading and drainage plans?

Yes. Land surveyors may prepare plot, grading and drainage plans which provide topographical and related measurement data, including the location of design features. However, a land surveyor may not design engineering, architectural, or landscape architectural components.

13. Can an architect, engineer, residential designer or home-owner/builder submit book bought residential drawings or residential drawings prepared by others and be in compliance with Alaska Statutes?

Drawings or specifications for private residences may be exempt under **AS 08.48.331(6)**. However, building officials may require calculations for unusual structures or conditions.

14. Can a contractor sign the cover sheet of a set of drawings prepared by an out-of-state architect, engineer, or landscape architect?

No, not for a project requiring the seal of a registered professional

15. At what point does a plan or drawing need to be sealed?

Refer to **12 AAC 36.185(a)(3), Use of Seals:**

Seal only final plans, surveys, reports, and required construction documents approved for building permit issuance for which the registrant is qualified to seal and for which the registrant claims responsibility.

16. Can an architect, engineer, land surveyor, or landscape architect seal a preliminary document?

Yes, if it is adequately noted near the seal that it is not a final plan but is intended as a conceptual document.

17. Do sealed, signed and dated construction documents need to be on the construction site?

Yes. Copies of the final sealed, signed and dated construction documents must be on the construction site.

18. Can drawings be submitted electronically with digital seals?

Yes. However, there must be an original document with a seal and original signature and date on file with the professional or document owner. Documents submitted for other purposes do not need to be sealed

19. How can a building official determine if the property plan boundary is correct?

One way to check is to look for the seal of a registered surveyor. The registered surveyor could then be contacted.

20. When is a landscape architect plan required to be signed, sealed and dated?

When it affects the public health and safety as determined by the AELS Board. Refer to **12 AAC 36.069**:

In accordance with **AS 08.48.331(b)**, and except as exempted in **AS 08.48.331(a)**, design or creative work involving any of the following constitutes the practice of an aspect of landscape architecture that affects the public health or safety and thus requires registration as a landscape architect:

- (1) grading, clearing, or shaping of land;
- (2) landscape irrigation;
- (3) outdoor planting plans;
- (4) outdoor play apparatus;
- (5) outdoor structures.

21. Does a planting plan need to be stamped by a registered landscape architect?

Yes, unless it falls under the exemptions under **AS 08.48.331**.

22. Am I doing anything wrong by reviewing plans that are not stamped by an architect or engineer?

Yes. (**AS 08.48.331**)

23. As a plan reviewer do I need to be a professional architect, engineer, land surveyor, or landscape architect?

You need to be registered unless you are exempt. Under **AS 08.48.331(13)** you are exempt "...when reviewing drawings and specifications for the compliance with the building codes of the state or a municipality if the drawings have been signed and sealed by a professional architect or professional engineer or the preparation of the drawings and specifications is exempt under this section from the requirements of this chapter..."

COMMON SERVICES PROVIDED BY ARCHITECTS, ENGINEERS, LAND SURVEYORS AND LANDSCAPE ARCHITECTS

The Architect

Presented in this section is a description of the general areas of responsibility for architects that elaborate on the statutory definitions of architecture mentioned above. The descriptions are not all inclusive but are intended to give general guidance on the definition of the practice of architecture.

A practicing architect is a person who has a valid registration issued by the state within which he or she intentionally assumes responsibility for providing professional services, including but not limited to safeguarding the health, safety and property and promoting the public's welfare for enhancement of both the natural and built environment. These enhancements shall be functional, aesthetically pleasing, sustainable, and cost effective. The result of the architect's professional service shall contribute to the physical, sociocultural, and emotional well being of the public. Listed below are examples of subjects that architects typically address:

1. Overall Project Management: construction management and inspection; planning; application of federal, state, and local codes; design standards.
2. Site Layout: comprehensive plans; land use laws; building layout; barrier-free access.
3. Building Classification and Intended Use: occupancy; type of construction; occupant load.
4. Building Circulation and Egress: corridors; travel distances; exits and exit widths; stairways.
5. Fire Safety Considerations:
 - a. fire ratings, fire walls, separations, requirements for sprinklers, fire alarms, smoke control, penetration control, product and material specifications, and damper types and locations.
 - b. consideration of the use and storage of hazardous materials (e.g., toxics, flammables, corrosives).
6. Interior Space Planning.
7. Interior and Exterior Finish Materials, and Wall/Floor Construction Systems (for durability, water tightness, aesthetics, and fire ratings).
8. Energy/Ventilation and Indoor Air Quality, including environmental impacts and compliance with regulations:
 - a. sound attenuation
 - b. solar energy
 - c. vapor barriers.
9. Accessibility for Persons with Disabilities *in compliance with the International Building Code.*
10. Project Coordination.

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The Engineer

In the State of Alaska engineers may obtain a certificate of registration in any one or more of the following branches of engineering. The branches are listed below in alphabetical order with their two-letter identifying abbreviations. Engineers shall enter their branch abbreviation within the seal on their documents below the signature and preceding their registrant number as stipulated in 12 AAC 36.180(b) SEAL:

AG – Agricultural	EC – Chemical
CE – Civil	CS – Control Systems
EE – Electrical	EV – Environmental
FP – Fire Protection	IN – Industrial
ME – Mechanical	MM – Metallurgical and Materials
EM – Mining and Mineral Processing	NM – Naval Architecture and Marine
NU – Nuclear	EP – Petroleum
SE – Structural	

A person who holds a current certificate of registration as an engineer in the State may practice in that branch or branches of engineering, as defined in 12 AAC 36.990(a), for which the engineer holds a registration, even if the engineering practice includes activities that are included in another branch of engineering defined in 12 AAC 36.990(a). This accommodation is found 12 AAC 36.205.

Presented in the balance of this section are descriptions of the general areas of responsibility that relate to the above branches. These further explain the general Statutory Definition for the practice of engineering mentioned above. The descriptions are not all inclusive but are intended to give general guidance on the scope of practice of the different branches. These are also found in 12 AAC 36.990 DEFINITIONS (a) of the State Regulations:

"agricultural engineering" means the branch of professional engineering that embraces studies and activities related to facility engineering of plant, animal, and commodity environments and structures; machinery involving power, electrical and electronic machines, controls and sensors; natural resource engineering involving soil, water and plant systems; process engineering involving food, feed, fiber, fuel products; and the organizational and economic aspects of these studies and activities;

"chemical engineering" means the branch of professional engineering that embraces studies and activities relating to applied chemistry, both industrial and nonindustrial, concerned with chemical materials, their composition, locations, transportation, and storage; chemical and physical-chemical processes naturally occurring or artificially operated, their matter and energy changes, the conditions of temperature, concentration and media for those changes, including apparatus and analytical control; chemical products, their quality, quantity, applications, uses, and values; preparation of materials for public or industrial use, including water supply, waste abatement, and pollution control; and the organizational and economic aspects of these studies and activities;

"civil engineering" means the branch of professional engineering that embraces studies and activities relating to research, design, and construction of fixed works for irrigation, drainage, waterpower, water supply and treatment, flood control, inland waterways, harbors, municipal improvements, railroads, highways, tunnels, airports and airways, sewerage, refuse disposal, foundations, structures, and bridges, and the organizational and economic aspects of these studies and activities;

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"control systems engineering" means the branch of professional engineering that embraces studies and activities relating to sensor technologies and measurement; signals and transmission, final control elements regarding valves, pressure relieving devices, and other final control elements, control systems analysis and implementation; and the organizational and economic aspects of these studies and activities;

"electrical engineering" means the branch of professional engineering that embraces studies and activities relating to generation, transmission and utilization of electrical energy, fire detection and alarm systems, control systems, electronic systems, and to telecommunications systems and facilities, including the design of electrical, electronic and magnetic circuits and components, and the technical control of their operation and of the design of electrical, fire alarm gear, control, electronic and telecommunications gear, and the organizational and economic aspects of these studies and activities;

"environmental engineering" means the branch of professional engineering that embraces studies and activities relating to wastewater, storm water, potable water, and water resources; ambient air, emissions sources, and control strategies; solid, hazardous, and special waste; environmental assessments, remediation, and emergency response and applicable codes, standards, regulations, guidelines; and the organizational and economic aspects of these studies and activities;

"fire protection engineering" means the branch of professional engineering that embraces studies and activities relating to fire protection analysis, fire protection management, fire science and human behavior, fire protection systems, fire building systems, and the organizational and economic aspects of these studies and activities;

For the purposes of AS 08.48.331(a)(14), "designing fire detection or suppression systems" includes those studies and activities related to the installation, maintenance, and inspection of those systems, including the direction of or the performance of fire protection systems surveys, consultation, investigation, evaluation, planning, and observations of construction and the organizational and economic aspects of those studies and activities.

"industrial engineering" means the branch of professional engineering that embraces studies and activities relating to facilities engineering and planning involving facility requirements, design alternatives, material handling techniques and equipment, systems analysis and design including processes, costing and performance measurement, logistics including production planning and control, distribution and storage and warehousing methods, methods to measure work, workstation design and analysis, ergonomics and safety, quality engineering and control, and the organizational and economic aspects of these studies and activities;

"mechanical engineering" means the branch of professional engineering that embraces studies and activities relating to the generation, transmission and utilization of energy in the thermal and mechanical form; engineering issues relating to the production of tools, machinery and their products; mechanical processes, heating, air conditioning, refrigeration, product transport, fire and smoke suppression, and plumbing; and the research, design, production, operation, control, and the organizational and economic aspects of these studies and activities;

"metallurgical and materials engineering" means the branch of professional engineering that embraces studies and activities relating to the production of metals, metal objects, materials, testing procedures, metal processing, failure analysis procedures and the development of metal alloys, the research, design, construction, and development of devices and facilities of production, and the organizational and economic aspects of these studies and activities;

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"mining and mineral processing engineering" means the branch of professional engineering that embraces studies and activities relating to the exploration, location, and recovery of mineral commodities, and the research, design, construction, and development of structures, devices, and facilities of production, and the organizational and economic aspects related to these studies and activities;

"naval architecture and marine engineering" means the branch of professional engineering that embraces the studies and activities relating to the mechanics of rigid and deformable bodies, exterior loads on military, public, commercial or private vessels or marine facilities, structural designs, applications, and considerations, vibration considerations including local, vortex induced, flow induced, and global vibrations, intact and damaged hydrostatic stability, methods and procedures, dynamic stability in waves, hydrodynamics, wind and waves, hull forms and design, marine engineering involving thermodynamics, internal fluid flow, propulsion and power generators, machine design, HVAC/refrigeration and electrical systems, materials corrosion and corrosion control, navigation and vessel control, hull outfitting, weight engineering, shipbuilding and repair engineering, rules and regulations, human factors, and safety systems, and the organizational and economic aspects of these studies and activities;

"nuclear engineering" means the branch of professional engineering that embraces the studies and activities relating to nuclear power systems and science, nuclear components and systems, construction, operational regulations, emergency planning, licensing regulation, codes and standards, nuclear fuel and waste management, nuclear radiation, protection, radiation shielding, interaction of radiation with matter, nuclear criticality, kinetics, neutronics, and nuclear measurements and instruments, and the organizational and economic aspects of these studies and activities;

"petroleum engineering" means the branch of professional engineering that embraces studies or activities relating to the exploration, location, and recovery of natural fluid hydrocarbons, and the research, design, production, operations of devices, facilities of production, and the organizational and economic aspects of these studies and activities;

"structural engineering" means the branch of professional engineering that embraces the studies and activities relating to the investigation, evaluation, analysis, design and construction of buildings, bridges, and other structures such as walls, columns, slabs, beams, trusses, or similar members requiring force-resisting and load bearing members and their connections, or similar members used singly or as a part of a larger structure, and the organizational and economic aspects of these studies and activities.

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This section describes the general areas of responsibility for professional land surveyors and elaborates on the statutory definitions of land surveying above. The descriptions are not all inclusive but are intended to give general guidance on the definition of the practice of land surveying.

1. Establishment, reestablishment and recovery of land boundaries, monuments and corners.
2. The design and planning of the subdivision of land into lots, parcels or tracts by the determination of terrain and location of new corners, lines and monuments according to local and state subdivision codes.
3. Horizontal and vertical measurement, analysis and adjustment.
4. Topographic measurement for the creation of a topographic (contour) map that illustrates slope, terrain, geographical features, structures, improvement, boundary lines and wetland delineation.
5. Writing, reviewing, researching, editing and analyzing land boundary descriptions (legal descriptions).
6. Geodetic surveys, aquatic land surveys and hydrographic surveys.
7. Research of written, physical and parole evidence related to the interpretation of land descriptions and boundary locations.

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Presented in this section is a description of the general areas of responsibility for landscape architects that elaborate on the statutory definitions of landscape architecture above. The descriptions are not all inclusive but are intended to give general guidance on the definition of the practice of landscape architecture.

1. Planning:
 - a. Site Analysis
 - b. Visual Assessment
 - c. Environmental Assessment
 - d. Recreation Assessment
 - e. Vegetation Management
 - f. Urban and Town
 - g. Regional
 - h. Parks and recreational facilities
 - i. Land Development
 - j. Historic preservation and reclamation

2. Design:
 - a. Site layout
 - b. Grading
 - c. Drainage
 - d. Planting
 - e. Landscape Irrigation
 - f. Landscape lighting
 - g. Pedestrian/bicycle/equestrian/vehicular circulation
 - h. Site furniture
 - i. Recreational facilities including children's play apparatus
 - j. Outdoor landscape structures
 - k. Wetland and wildlife habitat mitigation/restoration
 - l. Soil stabilization
 - m. Biofiltration

3. Construction:
 - a. Site construction management and administration

4. Other registered disciplines (practices) overlap with landscape architecture and, depending on the work, could be stamped by other registrants per AS 08.48.281(b).

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Drawings and specifications submitted to building, planning or public safety officials must be of sufficient nature to clearly show the project in its entirety. The minimum required drawings will depend upon the size, nature and complexity of the project.

COVER SHEET OR FOLLOWING SHEET

1. Project identification
2. Project address and location map
3. Identification of all design professionals
4. Design/Code Criteria:
 - a. Land use zone/setback requirements/parking requirements
 - b. Relevant codes
 - c. Occupancy group/separation requirements
 - d. Construction type
 - e. Height and number of stories
 - f. Square footage/allowable area of each occupancy by floor [raw square footage is of limited use]
 - g. Occupant load
 - h. Exiting requirements
 - i. Seismic/wind zones
 - j. Design loads
 - k. Fire sprinklers/standpipes
 - l. Legal description

LAND SURVEY/PLOT PLAN/BOUNDARY SURVEY [DRAWINGS]

Show surveyed boundary of land with existing structures, easements and setbacks.

SITE [DRAWINGS] PLANS

Show proposed new structure and any existing buildings or structures, property lines, streets, easements, encroachments [*buildings primarily on an adjacent lot*] and setbacks. Show proposed utility services. Show required parking, drainage and grading information (with reference to finish floor and adjacent streets). Indicate drainage inflow and outfall locations and specify areas required to be maintained for drainage purposes.

LANDSCAPE [DRAWINGS] PLANS

Show vegetation management, site layout, aesthetics and overall project design, site circulation and exiting, recreation facilities, playground structures, grading and drainage of the landscape, new planting, landscape irrigation, environmental impacts and barrier free design.

FLOOR [DRAWINGS] PLANS

Show floor plans including basements. Show rooms with their use, dimensions and locations of structural elements and openings. Show doors and window schedules or show dimensions at each opening on the drawings. Show fire assemblies, area and occupancy separations, fire barriers, fire areas and draft stops shall be shown.

FOUNDATION [DRAWINGS] PLANS

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Show foundations and footings. Indicate size, locations, thicknesses, materials and reinforcing. Show embedded anchoring such as anchor bolts, hold-downs, post bases, etc. Provide soils boring locations.

EXTERIOR ELEVATIONS

Show all building elevations and indicate building materials.

BUILDING SECTIONS AND WALL SECTIONS

Show materials of construction, non-rated and fire-rated assemblies and fire-rated penetrations. Show critical dimensions unless indicated elsewhere.

FRAMING [DRAWING] PLANS

Show structural members, size, methods of attachment, location, spacing, *[need rafter spacing, for example]* and materials. Indicate characteristics of sheathing, slabs, or decking. Locate lateral force-resisting elements.

MECHANICAL SYSTEM

Show entire mechanical system. Include units, unit sizes, mounting details, duct work and duct sizes. Indicate fire dampers where required. Provide equipment schedules.

PLUMBING SYSTEM

Show fixtures, piping, slopes, materials, fitting types *[type of DWV fitting is important]* and sizes. Show point of connections to site utilities with size and pressure where appropriate *[size of utility lines and water pressure are critically needed information]*.

ELECTRICAL SYSTEM

Show electrical fixtures (interior, exterior and site), circuit protection requirements *[can include ground-fault, arc-fault and short circuit protection]*, wiring sizes and circuiting, grounding, panel, schedules, single line diagrams, load calculations, and fixture schedules or label each fixture on drawings *[so that engineer is not required to produce a schedule for a small project]*. Show point of connection to utility and provision for disconnect.

SPECIFICATIONS

Either on the drawing or in booklet form further defines construction components, covering materials and methods of construction, finishes, and all pertinent equipment. Schedules may be incorporated in project manual in lieu of on drawings.

PROJECT CHANGES

The responsible design professional shall notify the building official of significant changes throughout the bidding and construction process and provide revised drawings, calculations or other appropriate documents. For clarity, all revisions shall be on the drawings and be submitted.

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Officials of government agencies who are responsible for review and approval of construction documents need to be attentive and thorough to make sure that there are no violations and that the work is done by the appropriate registered professionals. Should violations be detected and they are not corrected, they need to be reported. The State of Alaska has Investigators, Disciplinary Sanctions and Disciplinary Guidelines that are in place and that deal with such violations. An Investigative Committee is available to assist the investigator in evaluating allegations of violations. The proper procedure is to notify the investigators in the Department of Commerce and Economic Development, you should call them at phone 907-269-8176 or 907-269-8437 and request that a Complaint Form be mailed to you. Upon receipt of the form, fill it out and mail it back to Investigations at the address given on the form. Anonymous Complaints are not acceptable.