



Municipality of Anchorage



Handout – S.05 Completeness Standard for Structural Permit Submittals

The Municipality of Anchorage and the local structural design community have collaborated on this Completeness Standard to provide guidelines for the expected minimum completeness of permit submittals. Substantially complete structural submittals adhering to this standard benefit both the community and the Municipality by:

- Reducing the time required to review a submittal,
- Reducing the number of plan review comments,
- Reducing the number of plan review iterations required to obtain approval.

This reduction in time benefits not only the permit in question, but all other permits awaiting review, and can consequently speed up the entire permitting process saving both the Municipality and community time and money.

I. General requirements

- A. Legible plans with each sheet stamped by an Alaska registered structural engineer. Include on the plans:
 - i. Detail views for all conditions - If sim is used, describe the sim condition in the detail.
 - ii. A list of all structural deferred submittals.
 - iii. Complete structural notes including all design criteria.
- B. Legible structural calculations.
 - i. If a computer model was used in the analysis, provide all input including joint locations, basic load cases and load combinations.
 - ii. If non-transparent spreadsheets were used, include sample hand calculations.
- C. No overstresses are allowed in new construction.
 - i. Alternatively, provide justification how the overstress can be eliminated.
- D. All structures in Anchorage shall be detailed for seismic requirements, even if wind load controls.
- E. Gravity and Lateral load paths shall be designed through the foundation.

II. Incorrect or incomplete items may stop that portion of a review, in which case the plan reviewer will generate a comment and move on. Items that are incorrect by less than the margins indicated below may generate plan review comments, but will not halt the review.

- A. Seismic R value greater than allowed by adopted codes.
- B. Seismic weight of story or diaphragm unconservative by more than 15%
 - i. Snow not included in seismic weight.
- C. Wind zone or exposure category less than code requirements.
 - i. Seismic can still be reviewed if it controlled the lateral design by a large margin.
 1. Individual elements could still be wind controlled.
- D. Importance factors less than code requirements.
- E. Vertical loads (D, L, S) underestimated by more than 15%
- F. Computer model is not substantially correct, a substantially correct model shall include;
 - i. Results with 85% or more of the lateral force passing through the primary LFRS.
 1. May require separate model for gravity.

- ii. Connections modeled as pinned or fixed, based on connection details and consistent with assumptions.
- G. Gravity calculations are not substantially complete, substantially complete calculations shall include;
 - i. Check of the controlling case for beams and columns.
 - ii. Locations of the members checked.
- H. Foundation design is not substantially complete, a substantially complete submittal shall include;
 - i. Design for lateral force resisting system foundations and anchorage.
 - ii. Design for gravity foundations.
- I. Lateral design is not substantially complete, a substantially complete submittal shall include;
 - i. Design for the complete load path – diaphragms, drag struts, vertical elements and all the associated connections.
 - ii. The appropriate analysis procedure.

III. Items not required that can help speed up the review

- A. Calculation pages should be numbered and a table of contents included.
- B. Structural narrative defining the scope of work.
 - i. This is the most helpful when the intent, design philosophy and assumptions are outlined
- C. Detailed load definition – including a break down of DL
- D. Hand checks verifying the computer model
- E. Derivation of loads on gravity members
- F. Reference code sections for formulas or methods being used
- G. Include sketches and free body diagrams of what is being designed
- H. Definitions of the terms used in formulas rather than just the numbers
- I. Graphically show input and output for computer models
- J. Submit electronic copies of computer models in software we have (RISA 3D and ETABS)

Ron Thompson, Building Official
Date: March 12, 2007