Opinions regarding Soils Investigation Reports......2007 CBC

We are looking at setting an acceptable min seismic category (probably D or E) for our city unless a soil report is submitted for structures for room additions not exceeding 25% of the sq ft, of the original building. This would not apply to buildings complying with the conventional construction requirements.

Shane Walter
Director of Building and Safety
Palmdale, CA

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Your e-mail regarding soils report requirement under CBC 2007 is what we in the City of Santa Ana Planning & Building Agency had been struggling with for small projects. As the result of some meetings with staff and evaluating the small projects in City of Santa Ana, we came up with the attached policy. Would you please share with us the policy of your city regarding this issue?

Thanks.

Fred Heidari
Deputy Building Official
Building Safety Division

We have not changed our policy which is:

Policy:

- **New Buildings**: all new buildings require a soils investigation report and the report will need to address liquefaction potential. The only exemptions are one-story single-family detached dwellings and accessory structures such as shed, fence, residential garage or carport.

- **Additions or Alterations to a Single Family Dwelling**: additions or alterations to a single family dwelling do not require a soils report or liquefaction study. The codes do not address residential additions and it would be an economic hardship for the applicant to provide a geotechnical report for additions or alterations to a single-family dwelling.

- **Additions or Alterations to Buildings other than a Single Family Dwelling**: Per PRC Section 2693 (d) (2), all additions or alterations to any building other than a single family dwelling, which exceed 50 percent of the value of the structure or 50 percent of the existing floor area, will require a soils investigation report with liquefaction potential analysis.

Thanks,
Soroosh Rahbari
City of Westminster
It is my understanding of the sections 1802.2 through 1802.8 that soils reports are only required for large projects in most all areas around us (Fremont, Newark, etc.) and the smaller projects only when there are significant questions on the soil conditions. For Newark, the soil conditions for mostly conventionally built structures is nothing new and we will not be requiring soils reports for additions to single family dwellings. You folks in Fremont may have some issues for structures being built directly over the Hayward fault line or in the hills.

Also, I agree with your assessment that the IBC has not always been properly modified to deal with single family dwellings.

Ray Collier

Chief Building Official
City Architect
City of Newark, CA

Menlo Park has areas of highly expansive soil and a soils investigation is required for additions to single family dwellings. In other areas where the soil is known to be not highly expansive known through previous soils investigations, a new investigation is not required for additions to single family dwellings per the exception in 1802.2.

Ron La France
Building Official
City of Menlo Park

This section is really ambiguous, what we did after so many internal discussion is as follows:

Soil investigation report by registered soil or geotechnical engineer is required to be submitted for:
- New single family dwelling, subdivision (tract Homes), and all commercial job (new, addition)
- For new addition of single family dwelling with gross floor area less than 500 sqft, the soil report is waived, as long as the new foundation match the existing (mostly this job will be issued at front counter)
- For new addition larger than 500 sq ft, the applicant/designer need to fill out questionnaire form we provided, and base on the response to the question, our office will make decision of this requirements (this is for job that will not be issued at front counter, where a plan check is required).

There is a possibility in the future this requirements will be changed again.

Soen K. Thung SE
Supervising Structural Engineer
CCCBID

Unfortuantly the code is what it is and unless the State changes the code we are stuck with the mandatory aspects. I agree that it is too restrictive but when you get in court when something goes wrong and you didn’t require the soil report I hope you have a good city attorney.

Take care,

Howard Bell
We are doing what we have always done.

1. Require soils reports for subdivisions.
2. Require soils reports for commercial buildings, with exceptions for lightly loaded accessory structures.
3. Require soils reports for structures on hillsides or areas with expansive or liquefiable soils.

For single family homes, with light or moderate footing loads, not on hillsides or questionable soils we typically do not require soils reports. We interpret the code, to give the building official some latitude for determining what is required. -William (San Leandro)

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We are familiar with the soils in our area and are comfortable allowing the soils investigation to be waived on buildings meeting certain parameters.

On level lots with no known soils issues or illegal fill we will not require a soils report for light framed commercial buildings which are less than 4,000 sq. ft. in area consistent with the modifications to the code by DSA and OSHPD.

Soils reports are required on subdivisions by state law and are not an issue on typical subdivision homes. Infill housing, additions and minor accessory structures will be permitted when there are no known soils or slope issues.

In all cases when a soils report is not required we will require and alternate materials and methods form to be completed and approved by us to substantiate why we waived requirements for a soils investigation. Additionally, we will require the soils type to be noted on the cover sheet of the plans.

I have heard the argument that the building official has the ability to allow the soils investigation to be performed by a non-licensed person. However, in my opinion, when you read what is required to be addressed in the soils report this is not really a practical solution.

Bill Nagel, S.E.  
Assistant Director/Building Official  
Development Services Department  
Redding, CA  96049-6071  
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I agree with your synopsis. I will require a soils report when I think it is warranted based on the type, size and location of the work and if there is an existing soils report or known expansive soils.

Mark Wood
Chief Building Official
Davis, CA

Where you have data from adjacent sites in a new sub-division or an established neighborhood where nearby properties have recently done soils tests for room additions, swimming pools, or whatever other reasons, I think you would clearly have the authority to not require soils tests for every residential room addition under 1802.2, exception - even in seismic design category C. There seems to be less wiggle room for SDC D, E, and F, however.

There is an analogous situation in 1707.3 where we are required to have special inspection of shear walls with fastener spacing of 4 inches or less, on center, even for residential room additions. Where the work is of a "minor nature" (emphasis added), however, the building official has the authority to not require these inspections under 1704.1, exception 1. That would seem to cover most smaller single family room additions. It would seem reasonable to me to place similar language in the exceptions in 1802.2 for soils tests. Perhaps we could get some California Chapters interested in submitting some such language?

Roy Fewell
Building Official
City of La Habra

Our analysis is this:
1. The structure of the Code language makes 1802.2 a general rule, with questionable soil, expansive soil, ground-water table, pile and pier foundations, rock strata, and seismic design categories being subordinate criteria.
2. The exception at 1802.2 ("The building official need not require...") modifies the general rule of 1802.2, making it superordinate to the subsections that follow.

If the building official does not apply the exception, then subordinate criteria apply. If the building official does apply the exception, none of the subordinate criteria are considered.

"As indicated in the exception, where geotechnical data from adjacent areas are well known, the building official can accept the use of local engineering practices for the design of foundations." Also, "Whenever relevant soil characteristics are in doubt, or where a design is based on load-bearing values that are greater than those specified in the code, the building official may require investigation and testing of the soil" (International Code Council, Inc. (2006). 2006 International Building Code and Commentary--Volume II, Page 18-3).

There is no question that soils investigations are important and valuable. But the current Code clearly does not require it in all circumstances.
In practical application in La Quinta, we have one particular older area of town that is approximately 90% built-out. The soil conditions are well-known and consistent. Because of small lot sizes, unless we are presented with extraordinary design loads, we don't require a soils investigation for new construction in that area for new homes or additions. Most other areas of town are newer tracts, where a soils investigation is required prior to rough grading. In those areas, we require a soils update letter from a registered professional if the initial report is greater than a year old. All non-residential sites would require a soils investigation under the current or previous Code.

Yours truly,
Greg Butler
Building & Safety Manager
La Quinta, CA

My thinking on it is that a soils report may be needed for a residential room addition, but only on an engineered project. What good would a soils report be for a light frame conventional construction? I'm sure some unlicensed draftsman wouldn't know what do with one.
Bob Marshall
Building Official, Santa Maria