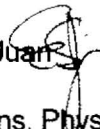


## MEMORANDUM

**To:** Vice Presidents of Administration

**From:** Elvyra F. San Juan 

**CC:** Executive Deans, Physical Plant Directors, Building Coordinators, R. West, B. Quillan, CPDC Managers

**Date:** October 1, 2008

**Re:** Revised Title 24 Energy Compliance Requirements

---

The CSU's current policy for Title 24 Energy Standards compliance is to outperform the current standard (2007) by a minimum of 15% for new construction and 10% for renovation projects.

Based on discussions with the Executive Deans and Directors of Physical Plant, the new standard will be for new construction projects to outperform current standards of Title 24 by a minimum of 20% for new construction. As part of the submittal for all design phases (schematic, preliminary and construction documents), Title 24 calculations for compliance will be indicated for overall (all building elements) performance as well as component energy compliance for the Envelope Only, Indoor Lighting Only, and Mechanical & Domestic Hot Water Only. These calculations are part of energy analysis computer programs certified by the California Energy Commission such as EnergyPro, eQuest or others. The compliance standards for renovation projects remain unchanged at 10%. This new standard is being applied to projects beginning design after July 1, 2008.

The CSU Mechanical Review Board (MRB) is also developing the methodology for design engineers to provide/calculate the estimated BTU/GSF for new buildings. This information will also help to assess the adequacy of building design in consideration of the Trustees' energy use intensity goals.

An explanation on the component energy compliance calculation process is enclosed. Please contact Satinder Gulati, University Engineer, CPDC at 562-951-4105 if you have any questions.

ESJ:SG:pf

Enclosure: Title 24 Component Energy Compliance Calculation Process

# CSU

## Title 24 Component Energy Compliance Calculation Process

CSU projects shall comply with Title 24 Energy Standards using the Performance Approach (Section 141) using an energy analysis computer program approved by the California Energy Commission. The Prescriptive Approach to Title 24 shall not be acceptable.

The Project Basis of Design submittal shall include the Performance Certificate of Compliance energy use summary (PERF-1 Part 2 of 3) indicating the overall and component energy usage in a table such as below. In the following example, the building as a whole meets the 20% overall building energy target, and the envelope outperforms Title 24 by a margin of 12.9%; lighting by a margin of 7.3% and mechanical & hot water heating systems by a margin of 4.9%.

<b>Component</b>	<b>% Better than Standard T24 Compliant Building</b>
Overall	22.5
Envelope Only	12.9
Indoor Lighting Only	7.3
Mechanical & Domestic Hot Water Only	4.9

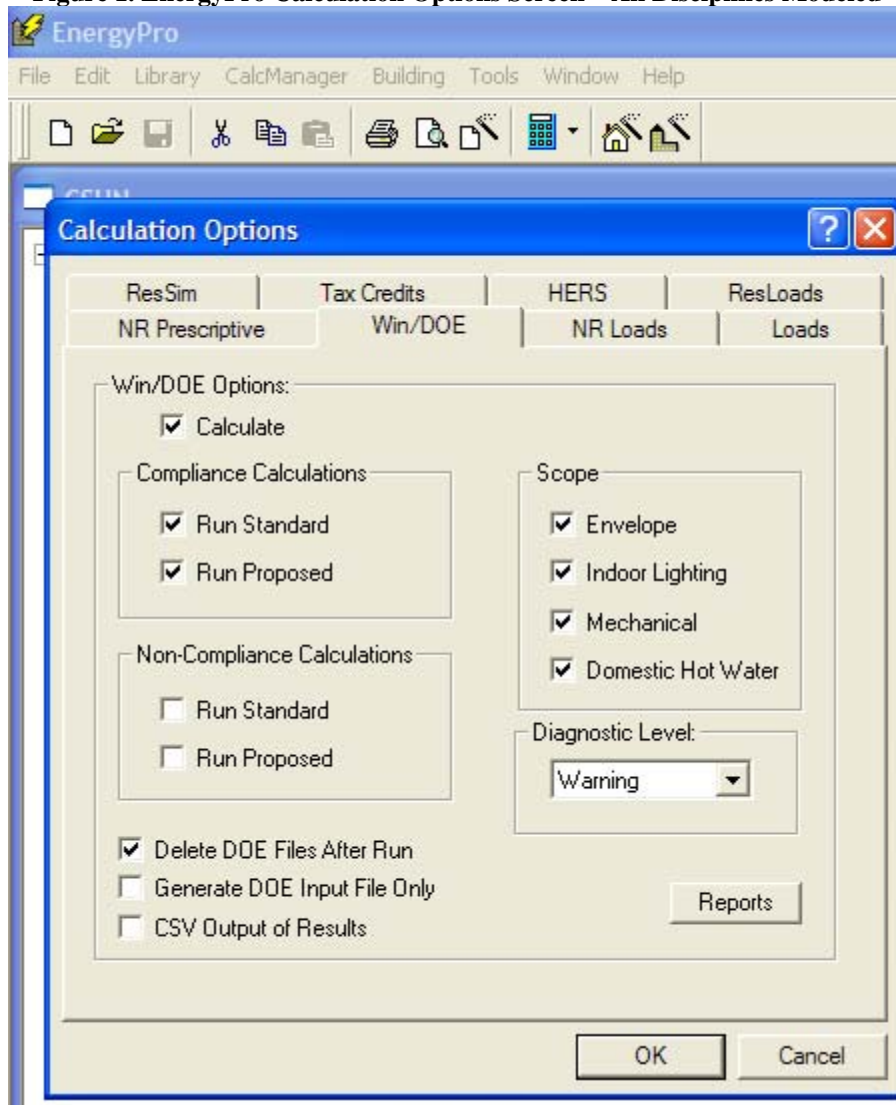
The percentages above shall not include “process” energy usage as defined by the Energy Standards but shall include receptacle loads.

# CSU

## Title 24 Component Energy Compliance Calculation Process

The example shown herein is for the EnergyPro program, but eQUEST and any other certified program may be used. The 'Overall' analysis includes all building elements. This is accomplished in EnergyPro by marking the check boxes for all disciplines under Scope in the Win/DOE tab of the Calculation Options window as shown in Figure 1. The Calculation Options window can be found under the CalcManager pull-down menu.

**Figure 1. EnergyPro Calculation Options Screen – All Disciplines Modeled**

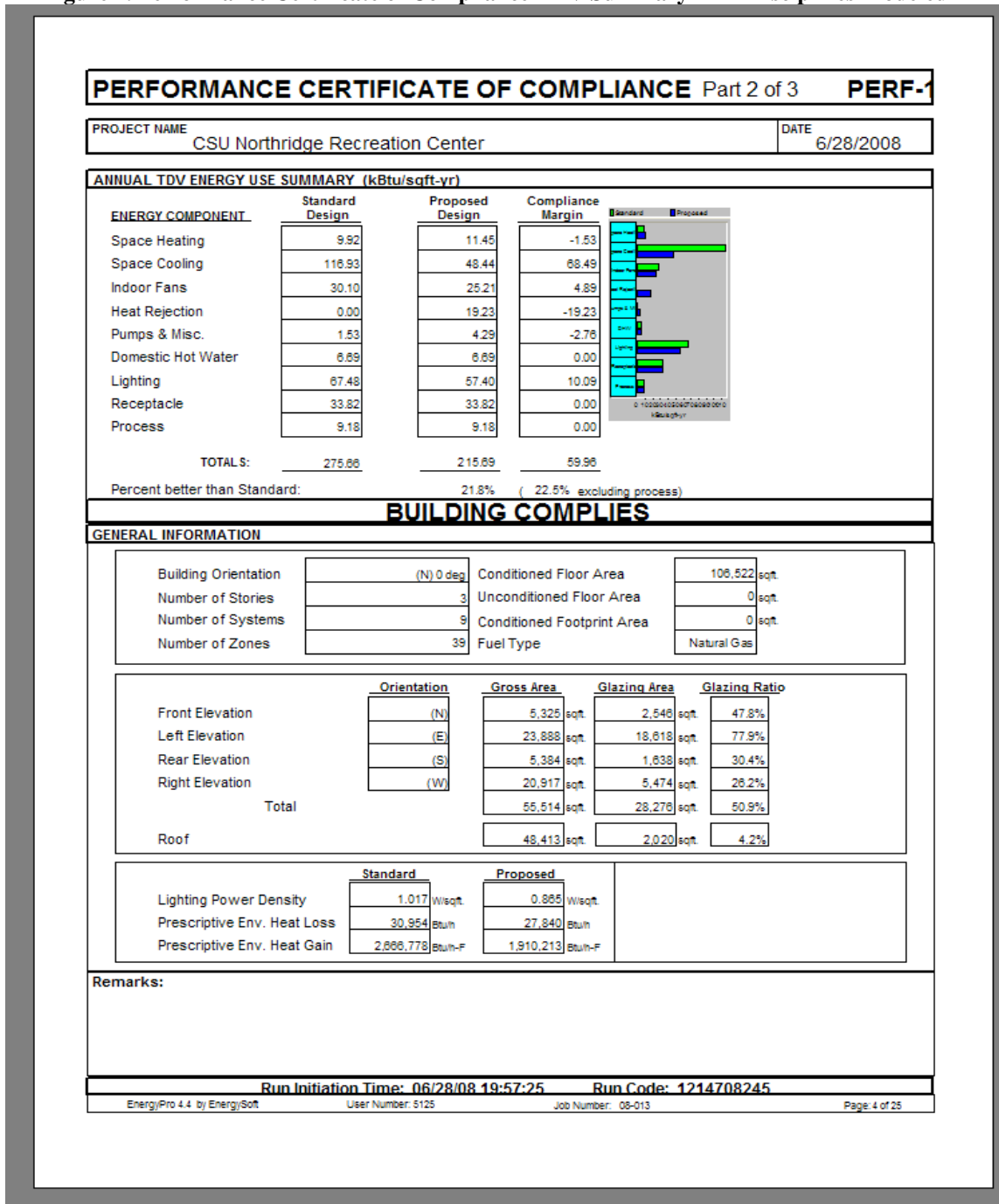


# CSU

## Title 24 Component Energy Compliance Calculation Process

The program is executed and the results can be seen by viewing the Performance Report output on the PERF-1 form, page 2 of 3 as shown in Figure 2 below. In this example, the building with all disciplines modeled complies by 22.5% without process (see the “Percent Better than Standard” line in the Annual TDV Energy Use Summary). This is greater than the 20% proposed CSU target so the project complies overall. Now each discipline shall be analyzed.

**Figure 2. Performance Certificate of Compliance TDV Summary – All Disciplines Modeled**

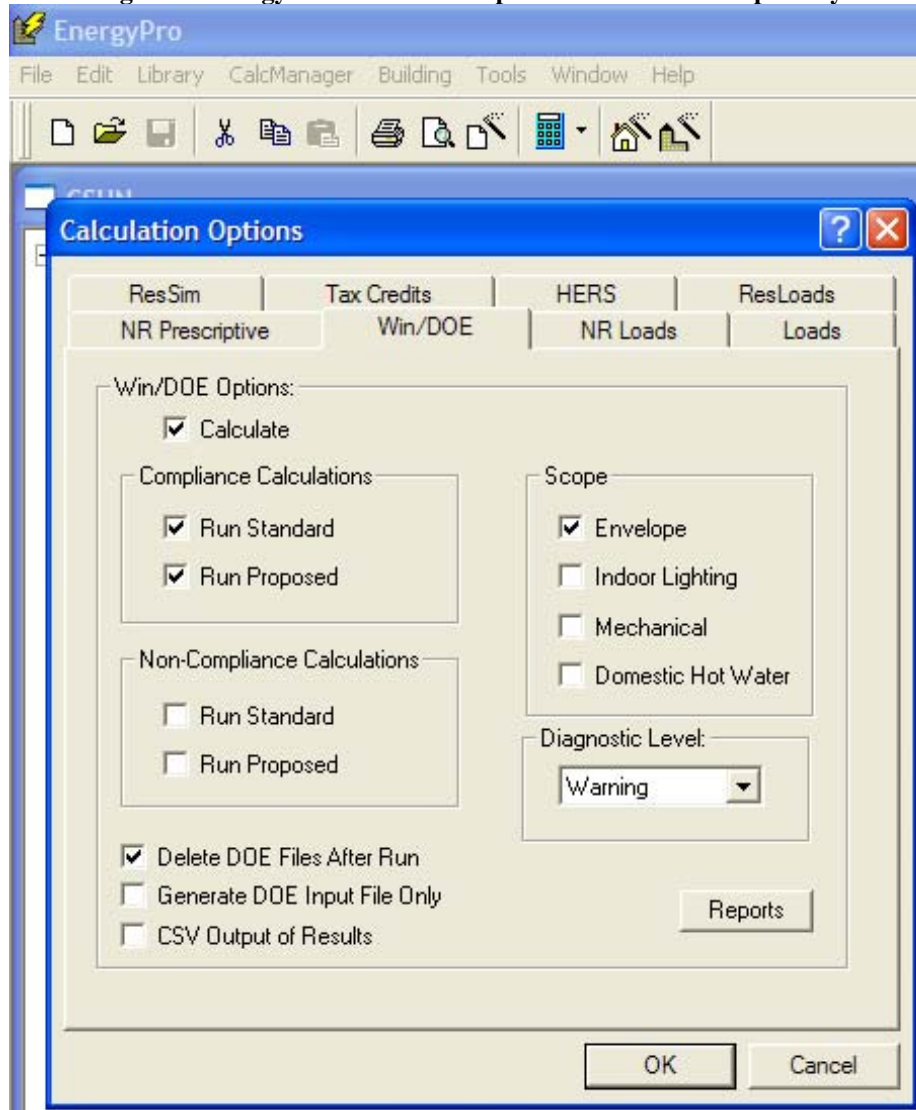


# CSU

## Title 24 Component Energy Compliance Calculation Process

Envelope Analysis: To accomplish this, check only the 'Envelope' check-box in the Win/DOE tab of the Calculation Options window as shown in Figure 3 below.

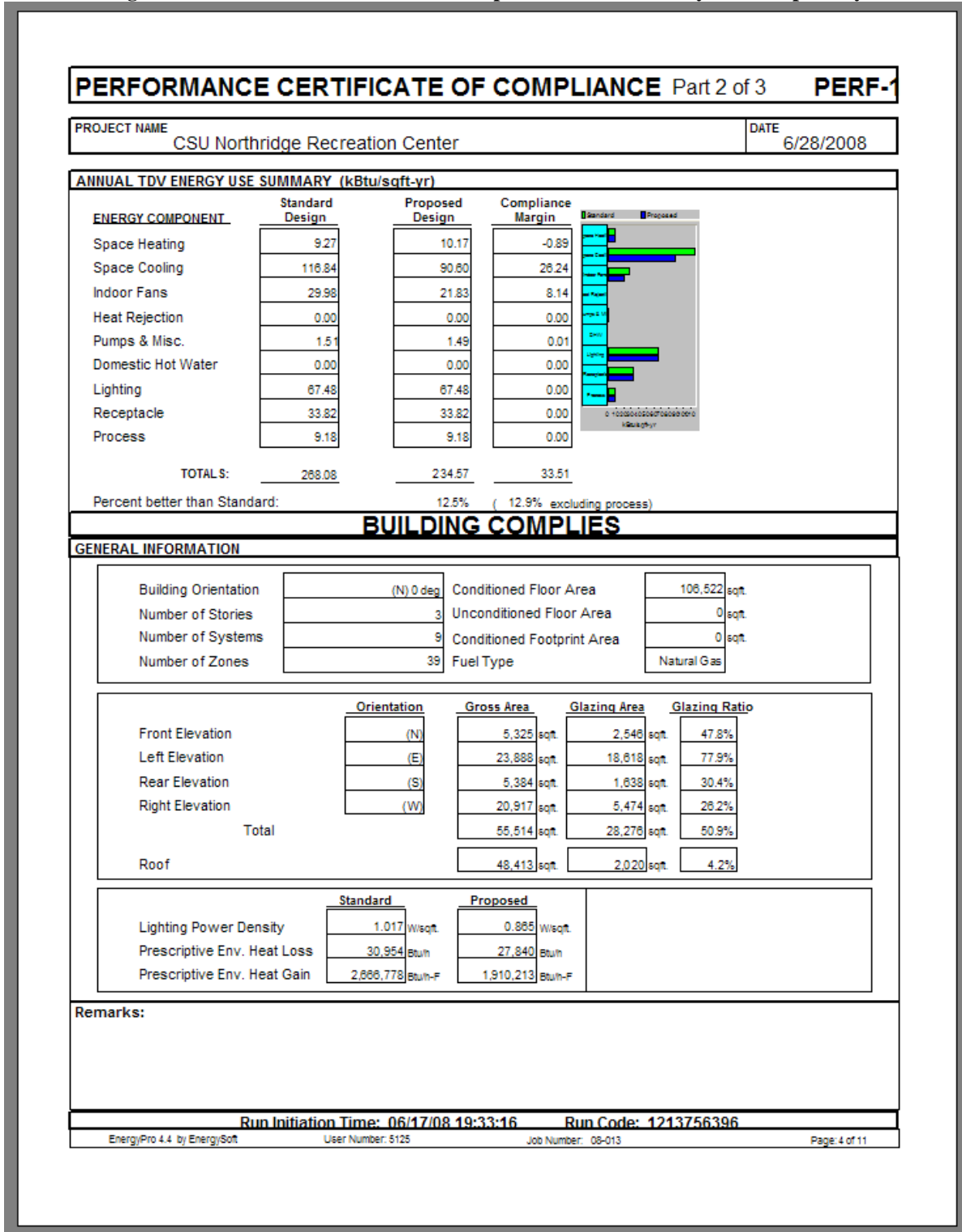
**Figure 3. EnergyPro Calculation Options Screen – Envelope Only**



# CSU Title 24 Component Energy Compliance Calculation Process

The result of checking 'Envelope' only is shown in Figure 4 where the PERF-1 results indicate that the envelope alone outperforms Title 24 by 12.9% (excluding process loads).

**Figure 4. Performance Certificate of Compliance TDV Summary – Envelope Only**

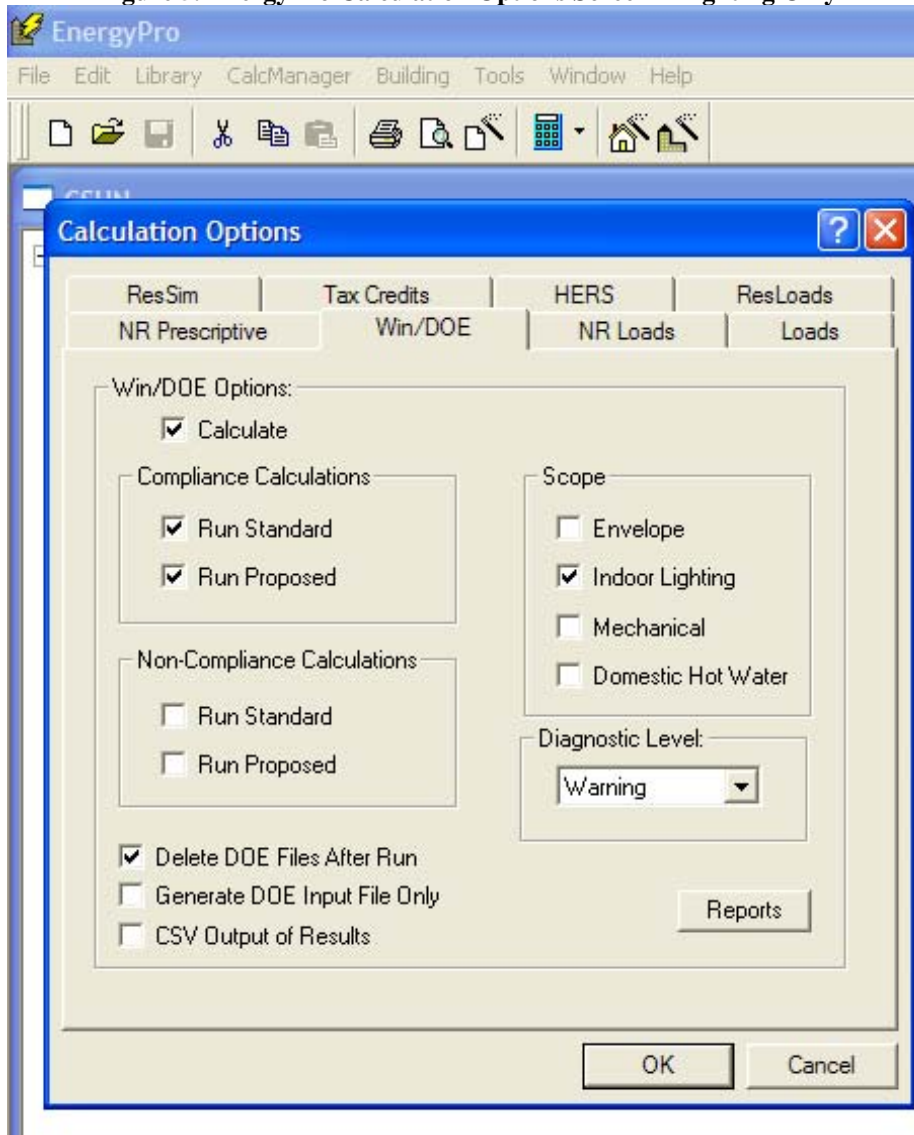


# CSU

## Title 24 Component Energy Compliance Calculation Process

Indoor Lighting Analysis: To accomplish this, check only the 'Indoor Lighting' check-box in the Win/DOE tab of the Calculation Options window as shown in Figure 5 below.

Figure 5. EnergyPro Calculation Options Screen – Lighting Only

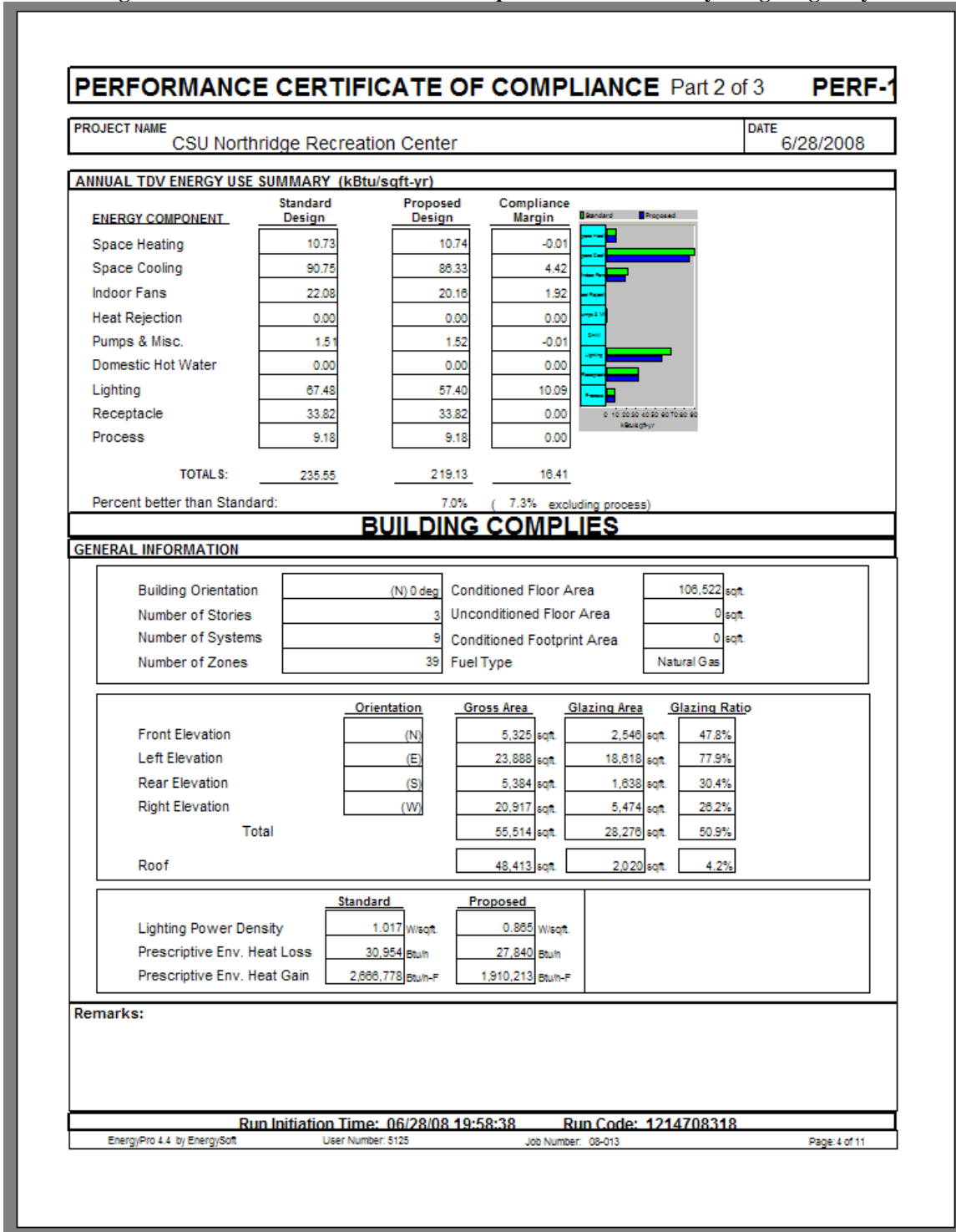


# CSU

## Title 24 Component Energy Compliance Calculation Process

The result of checking 'Indoor Lighting' is shown in Figure 6 where PERF-1 results indicate that the lighting alone outperforms Title 24 by 7.3%.

**Figure 6. Performance Certificate of Compliance TDV Summary – Lighting Only**

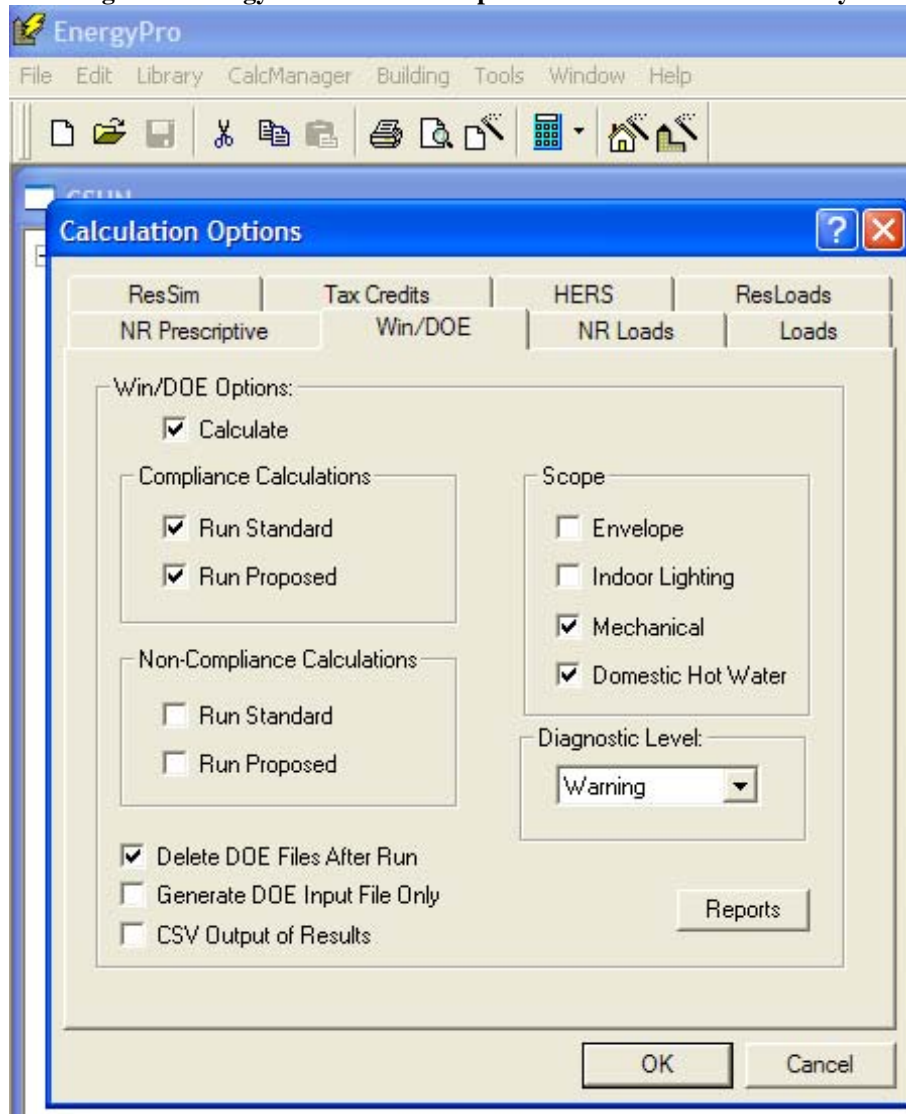


# CSU

## Title 24 Component Energy Compliance Calculation Process

Mechanical and Domestic Hot Water Systems Analysis: To accomplish this, check only the 'Mechanical and Domestic Hot Water' check-boxes in the Win/DOE tab of the Calculation Options window as shown in Figure 7 below.

**Figure 7. EnergyPro Calculation Options Screen – Mechanical Only**



# CSU

## Title 24 Component Energy Compliance Calculation Process

The result of checking 'Mechanical and Domestic Hot Water' is shown in Figure 8 where the PERF-1 results indicate that the mechanical and domestic hot water systems alone outperforms Title 24 by 4.9%.

**Figure 8. Performance Certificate of Compliance TDV Summary – Mechanical Only**

