



Design Process Modification

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Design Process Modification

Intent of SB 668 & GS 143-135.35 ---.40

- State buildings will be improved to meet sustainability **performance standards**
- **Building energy** and **water consumption** shall be measured to verify standards are met.



Design Process Modification

What's new? (Effective August 8, 2008)

Improved Designs for Energy and Water Efficiency to be installed in state facilities

Advance Planning

Integrated design/Modeling

Commissioning



Design Process Modification

Performance Standards-Compared to ASHRAE 90.1-2004 standard (NC Energy Code).

■ Water Standards

- Indoor Potable water
- Outdoor potable and harvested storm water

■ Energy Standards

- New Buildings
- Building Renovations



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Water Standards

- **Indoor Potable water: Calculated use is at least 20% less than the fixture performance requirements of the 2006 NC Building code**
- **Outdoor potable and harvested storm water: 50% less than the sum of the outdoor potable water and harvested storm water use for the same building using the performance requirements of the 2006 NC State Building Code**



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Energy Standards (Compared to a base building that meets ASHRAE 90.1-2004)

- **New Buildings- Calculated energy consumption is at least 30% better than the same base building**
- **Renovations – Calculated energy consumption is at least 20% better than the same base building**



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Advance Planning - GS 143-64.15 revised to require a LCCA which includes:

- **Coordination, orientation and positioning of the facility on the site**
- **Amount and type of fenestration and the potential for day lighting employed in the facility**
- **Thermal Characteristics of materials and insulation used in the construction of the facility**
- **Variable occupancy and operating conditions of the facility, including illumination levels**



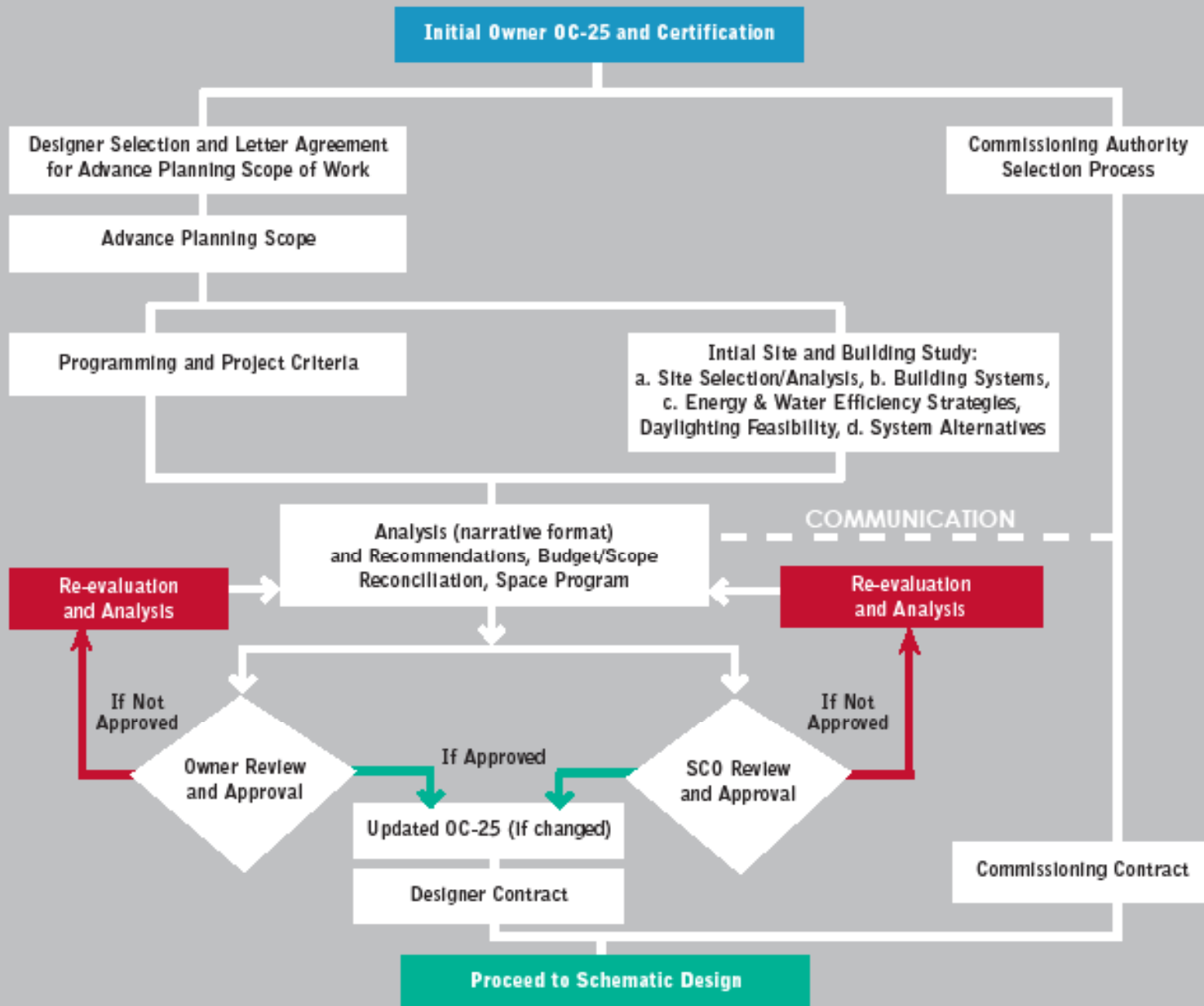
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Prior to selecting a design option the appropriate LCCA(s), is(are) required to be submitted to the State Construction Office and certified:

- **At the schematic design phase**
- **Again when it is updated or amended at the DD phase and as needed at the CD phase**

SUSTAINABLE, ENERGY EFFICIENT BUILDINGS ADVANCE PLANNING FLOWCHART

GS - 143 - 135.35 -.40 (Article 8C)



Revised 29 September 2008



Design Process Modification

■ Commissioning

- The State Construction Manual, Section 306, Paragraph M
- Commissioning Authority shall review the SD design package against the modeling assumptions and makes written comments to the design team. Refer to the “Commissioning Guidelines” in the dropdown window under “Guidelines” on the State Construction website.



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Commissioning

- Designer-Led Commissioning
 - **Smaller buildings, less complex building systems**
- Third party Commissioning (CxA)
 - **Most intensive-larger more complex projects**
 - **Registered engineering firm in NC**
 - **Under contract with the owner-Qualifications**
 - **CxA is involved from the advanced planning phase**



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