MEMORANDUM

TO: The Honorable Rod R. Blagojevich, Governor
    The Honorable Emil Jones, Senate President
    The Honorable Frank C. Watson, Senate Minority Leader
    The Honorable Michael J. Madigan, Speaker of the House
    The Honorable Tom Cross, House Minority Leader

FROM: Dr. Randy J. Dunn
      State Superintendent of Education

DATE: February 21, 2006

SUBJECT: School Plan Reviews and Inspections Task Force Report

The attached report is being submitted in compliance with Public Act 94-0225.

The Illinois State Board of Education thanks the members of the School Plan Reviews and Inspections Task Force for their input in developing this report regarding school plan reviews and inspections.

cc: Mark Mahoney, Clerk of the House
    Linda Hawker, Secretary of the Senate
    Legislative Research Unit
    State Government Report Center

Enclosure
School Plan Reviews and Inspections

PA 094-0225

TASK FORCE REPORT

To the Governor and General Assembly
January 31, 2006
# Task Force Report Contents

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Executive Summary

The Task Force on School Plan Reviews and Inspections, created by Public Act 094-0225, believes that the provisions outlined in this new law are welcome additions for Illinois public schools. In particular, we believe that the provision allowing municipalities to review school building plans before construction and a requirement that the Office of the State Fire Marshal or a "qualified fire official" conduct annual fire safety inspections will strengthen intergovernmental relationships necessary to meet common goals.

Under previous state law, thousands of school inspections were conducted and thousands of building and occupancy permits have been issued by the state’s Regional School Superintendents. However, the General Assembly and the Task Force acknowledge that problems do exist in the current system. It is generally recognized that improvements in the way school construction documents are reviewed and the way school buildings are inspected would enhance the current system.

This report provides a summary of the Task Force findings to the Governor and the General Assembly regarding school plan reviews and inspections.

Within this report, the Task Force recommends the following:

Administration and Funding

Establish Strong Relationships. All Regional Offices of Education (ROEs) should continue to develop relationships with all municipalities and fire protection districts within their regions that register under the new law to review school construction plans. If ROEs find that municipalities and fire protection districts within their region have not registered with them, they should make contact with the municipalities to encourage registration with their office, even if multiple municipalities and fire protection districts are involved.

Shared Expertise at No Cost to a School District. If a Regional Superintendent finds that municipalities and fire protection districts have individuals on staff who are qualified to review plans and construction documents according to the methods recommended in this report, the Regional Superintendent should seek formal agreements with local government leaders to conduct plan and document reviews as well as onsite inspections at no cost to a school district or the Regional Office of Education.

No Expertise Available to Share. If a Regional Superintendent finds that municipalities and fire protection districts do not have individuals on staff who are qualified to conduct plan reviews or inspections, or find that municipalities are unable to conduct plan reviews or inspections according to the methods recommended in this report, the Regional Superintendent will need to proceed as follows, depending on the availability of State funds:

With State Funding: If adequate funding is available from the General Assembly, all Regional Offices of Education should employ qualified plan reviewers and inspectors or contract with independent third parties that are qualified to conduct plan reviews and inspections according to the methods recommended in this report.
Without State Funding: If adequate funding is not made available by the General Assembly, a Regional Superintendent or their designee should meet with the Architect or Engineer of Record for each school construction project to assure plan reviews and inspections are conducted using the methods recommended in this report for all the applicable codes.

Plan Reviews

Establish Rules for Plan Review Methods. To assure thoroughness and consistency in conducting plan reviews, rules should be established by the Illinois State Board of Education (ISBE) to require qualified plan reviewers to record the results of each review on forms such as those Plan Review Records provided by the International Code Council (Appendix A). This record should be submitted for all of the codes required by the Health, Life Safety Code of the Illinois State Board of Education.

Establish Rules for Documenting that all Plan Reviews Have Been Conducted. ISBE should establish rules to require the Regional Superintendent to document that all plans and other construction documents have been reviewed and signed off by plan reviewers, qualified in accordance with the recommendations in this report, as being in compliance with the applicable codes prior to the issuance of a building permit.

Enact Legislation and Establish Rules for the Qualifications of Plan Reviewers. Rules should be established by ISBE to assure that plan reviewers are qualified, in accordance with the recommendations in this report. The General Assembly should enact legislation requiring the ISBE to promulgate these rules.

New Construction Inspections

Establish Rules for New Construction Inspection Methods. To assure consistency and thoroughness in conducting inspections, ISBE should establish rules to require inspectors to record the results of each required new construction inspection on forms designated by ISBE (such as those provided by the International Code Council).

Establish Rules for Documenting that all Inspections have been conducted. ISBE should establish rules to require the Regional Superintendent to document that all required inspections for new construction have been conducted by qualified inspectors and the project work has been certified to be in compliance with approved construction documents, prior to the issuance of a certificate of occupancy.

Enact Legislation and Establish Rules for Qualifying New Construction Inspectors. Rules should be established by ISBE to assure that any individuals conducting onsite inspections of school buildings in accordance with the methods recommended in this report are qualified. The General Assembly should enact legislation requiring the ISBE to promulgate these rules.

Annual Fire Safety Inspections

Establish Rules for Documenting that all Annual Fire Safety Inspections have been Conducted. The Task Force recommends that the Office of the State Fire Marshal shall establish rules to document that Annual Fire Safety Inspections have been conducted by qualified fire officials. This information should be shared with the Regional Superintendent within the appropriate region.
Establish Rules for Qualified Fire Official. OSFM should establish rules to define Qualified Fire Official as recommended in this report.

Task Force Extension

Enact Legislation to Extend Task Force Term. The term of the Task Force on School Plan Reviews and Inspections should be extended for the purpose of recommending and reviewing any new administrative rules, promulgated by ISBE and the Office of the State Fire Marshal for the implementation of PA 094-0225.
School Plan Reviews and Inspections Task Force Members

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Appointed by an organization representing professional engineers.
I. School Construction Plan Reviews

Plan Review Methods

Task Force Findings

Current Illinois law, 105 ILCS 5/3-14.20, requires all Regional Superintendents of Schools “to inspect the building plans and specifications, including but not limited to plans and specifications for the heating, ventilating, lighting, seating, water supply, toilets and safety against fire of public school rooms and buildings submitted to him by school boards and to approve all those which comply substantially with the building code authorized in Section 2-3.12” of state law.

The intent of this statute is to ensure the safety and well-being of public school students and staff by requiring the Regional Offices of Education to review and approve of all construction plans and specifications for schools. The Illinois State Board of Education maintains administrative rules to implement this law.

This rule -- 23 Illinois Administrative Code, Section 180.200 -- requires that construction documents be certified by the architect or engineer responsible for designing the construction project as being in compliance with all building codes and requirements found in the Illinois School Code. The rules also require that regional superintendents approve plans and specifications in writing “after having determined that the plans and specifications submitted comply with all applicable requirements.”

During 2005 it was generally agreed by state officials, education administrators, fire and building officials and the design and construction professionals that changes needed to be made to enhance the current system. In due course, Public Act 094-0225 was enacted by the General Assembly and signed into law by Governor Rod Blagojevich.

The new law allows counties, municipalities and fire protection districts, as well as the Regional Superintendents of Schools, to review and approve school construction plans and documents as an added measure of safety for school districts. Local governments must register their intent to review school construction plans with the Regional Superintendents of Schools.

While PA 094-0225 allows for additional review of school construction plans by local governments, one very important issue remained unresolved in the wake of the legislation – the cost of conducting construction plan reviews by qualified plan reviewers on the large number of remodeling, repair and new construction projects throughout Illinois. The new law clearly states that these additional reviews be completed at no cost to any school district, yet the cost of such a review can be substantial. For instance, the International Code Council (ICC), one of the nation’s leading building code development organizations, charges an estimated $4,700 to review a set of plans and construction documents for a 45,000-square-foot building to see if the plans and specifications comply with the latest edition of the International Building Code. In addition, the ICC charges approximately $1,200 to review plans for compliance with the latest editions of subsidiary building codes – the International Energy Conservation Code, the International Mechanical Code and the International Fire Code – Sprinkler Code. This is just one example and the size, number, and complexity of school construction projects through out
Illinois means these costs will vary widely. Additional plan reviews that prevent construction mistakes are invaluable.

**Task Force Recommendations**

1. **Legislation.** The Task Force believes that its recommendations for plan review methods in accordance with PA 094-0225 can be accomplished through the promulgation of administrative rules. No additional legislation is needed at this time.

2. **Plan Review Record Requirement.** To assure consistency and thoroughness in the conduct of all plan reviews, the ISBE should require school districts to submit Plan Review Records, such as those provided by the International Code Council (Appendix A), with each Application for Building Permit, to the Regional Superintendent of Schools. Plan Review records should be required for each of the following codes, as applicable: the 2003 editions of the International Building Code, the International Energy Conservation Code, the International Fire Code, the International Fuel Gas Code and the International Mechanical Code.


4. **Construction Documents.** The Task Force recommends that “Plan Review” be defined in rules to mean the review of all applicable “construction documents”.

5. **Independent Third-Party Reviewers.** ISBE should adopt rules that specify that if an independent third party plan review is required, the reviewer cannot be the Architect or Engineer of Record for the project being reviewed.

6. **Structural Review Requirements.** Contingent upon adequate appropriation by the General Assembly, the ISBE rules should include a statement that would require school construction projects with any type of structural component be reviewed by an independent structural engineer licensed under the Illinois Structural Engineering Act.

7. **Procedures When Local Expertise is Available.** All Regional Offices of Education (ROEs) should continue to develop relationships with all municipalities and fire protection districts within their region that register under the new law to review school construction plans. If ROEs find that municipalities and fire protection districts within their region have not registered with them, they should make contact with the municipalities to encourage them to register with their office, even if multiple municipalities and fire protection districts are involved.

   If a Regional Superintendent finds that municipalities and fire protection districts have individuals on staff who are qualified to review plans and construction documents according to the methods recommended in this report, the Regional Superintendent should seek formal agreements with local government leaders to conduct plan and document reviews at no cost to a school district or the Regional Office of Education.

8. **Procedures When No Expertise Available to Share.** If a Regional Superintendent finds that municipalities and fire protection districts do not have individuals on staff who are qualified
to review plans and documents, or find that municipalities are unable to conduct plan reviews and inspections according to the methods recommended in this report, the Regional Superintendent will need to proceed as follows, depending on the availability of State funds:

- **With State Funding.** If adequate funding is available from the General Assembly, all Regional Offices of Education should employ qualified plan reviewers and inspectors or contract with independent third parties that are qualified to conduct plan reviews according to the methods recommended in this report.

- **Without State Funding.** If adequate funding is not made available by the General Assembly, a Regional Superintendent or their designee should meet with the Architect or Engineer of Record for each school construction project to assure plan reviews are conducted using the methods recommended in this report for all the applicable codes.

9. **Potential Language** The Task Force recommends that the ISBE establish rules to govern third party plan reviewers in the completion of school construction Plan Review Records and/or Plan Review Statements in accordance with PA 094-0225.

With adequate appropriation from the General Assembly to fund independent reviews of school construction plans and documents:

**Application for Building Permit:**

A Plan Review Record for the 2003 International Building Code, the 2003 International Energy Conservation Code, the 2003 International Fire Code, the 2003 International Fuel Gas Code and the 2003 International Mechanical Code when applicable to the project. The Plan Review Record shall be completed, dated and signed by a qualified plan reviewer who is not the Architect or Engineer of Record or under the employ of the Architect or Engineer of Record for the project being evaluated.


**Definitions:**

"Plan Review" means the review of all construction documents pertaining to a project.

"Plan Review Statement" means a written certification that plans and specifications have been evaluated and found to be in compliance with the 2003 International Property Maintenance Code, the Illinois Accessibility Code, the Illinois Boiler and Pressure Vessel Safety Code or the Illinois Plumbing Code.

"Plan Review Record" means a written record of the evaluation of construction documents as designated by ISBE (such as the Plan Review Records provided by the International Code Council) used to determine compliance with the applicable code.
Without an adequate appropriation from the General Assembly to fund independent reviews of school construction plans and documents:

Application for Building Permit

A Plan Review Record for the 2003 International Building Code, the 2003 International Energy Conservation Code, the 2003 International Fire Code, the 2003 International Fuel Gas Code and the 2003 International Mechanical when applicable to the project. The Plan Review Record shall be completed, dated and signed by a licensed design professional.


Section 180.30 Definitions

“Plan Review” means the review of all construction documents pertaining to a project.

“Plan Review Statement” means a written certification by a licensed design professional that construction documents have been evaluated and found to be in compliance with the 2003 International Property Maintenance Code, the Illinois Accessibility Code, the Illinois Boiler and Pressure Vessel Safety Code, or the Illinois Plumbing Code.

“Plan Review Record” means a written record of the evaluation of construction documents (such as the Plan Review Records provided by the International Code Council) used to determine compliance with the applicable code.

Documentation of Plan Reviews

Task Force Findings

The Task Force found that Public Act 094-0225 mandates ISBE adopt administrative rules for requiring plan review documentation for new construction.

Regional Superintendents currently “determine that the plans and specifications submitted comply with all applicable requirements” by ensuring that the plans and specifications have been certified by an Illinois licensed architect or engineer and to the best of his/her knowledge comply with the Health/Life Safety Code for Public Schools.

The Task Force reviewed the draft of a Plan Review Documentation Form (Appendix B) prescribed by ISBE for ROE use.

Task Force Recommendations

1. Legislation. Current provisions in Public Act 094-0225 requiring rules to be promulgated by ISBE for documentation are adequate.
2. Administrative Rules. The ISBE should establish rules requiring the Regional Superintendent to document that all plans and other construction documents have been reviewed and signed off by plan reviewers who are qualified in accordance with the recommendations in this report, as being in compliance with the applicable codes prior to the issuance of a building permit.

A form similar to the draft Plan Review Documentation Form (Appendix B) prescribed by ISBE should be used by the ROEs to ensure that the plan review documentation for all areas of the State is consistent prior to the issuance of a building permit.

3. Potential Language. The Task Force recommends that the ISBE establish the following rules to govern school construction plan review documentation in accordance with PA 094-0225.

23 Illinois Administrative Code 180, Health/Life Safety Code for Public Schools

Section 180.200 Application for Building Permit

The application for Building Permit shall include:

3) A Plan Review Record for each of the codes applicable to the project. The Plan Review Record shall be completed, dated and signed by a licensed design professional, or by a Qualified Plan Reviewer as defined in the recommendations in this report.

Section 180.30 Definitions

"Plan Review Record" means a written record of the evaluation of construction documents (such as the Plan Review Records provided by the International Code Council) used to determine compliance with the applicable code.

Qualifications for Plan Reviewers

Task Force Findings

Public Act 094-0225 requires the Task Force to make recommendations regarding the training and accreditation for plan reviewers, but does not specifically require ISBE to develop rules for training and accreditation of plan reviewers.

The Task Force found that current ISBE rules do not identify any qualifications, training or accreditation of any individuals, except for a licensed design professional – an architect or engineer – working on a school construction project. The Task Force considered current Illinois rules regarding the qualifications for the licensure of architects, engineers, plumbing inspectors and asbestos abatement professionals, as well as a list of all occupations licensed, certified or registered by the State of Illinois and found at www.ides.state.il.us.

In addition, the Task Force reviewed the certification program for plan reviewers administered by the International Code Council, the publisher of the model building codes referenced by the Health/Life Safety Code for Public Schools.
Task Force Recommendations

1. Legislation. The General Assembly should enact new legislation requiring ISBE to promulgate rules that require all plan reviewers acting in accordance with PA 094-0225 be qualified and set forth minimum qualifications for plan reviewers.

2. Administrative Rules. The ISBE should establish administrative rules requiring plan reviewers acting in accordance with PA 094-0225 be qualified. The following definition of "Qualified Plan Reviewer" should be incorporated into the ISBE rules.

"Qualified Plan Reviewer" means an individual who has successfully completed a Commercial Plans Examiner Examination administered by the International Code Council (ICC) that is specific to the code being reviewed, has a minimum of two years experience reviewing commercial plans and has an understanding of the specific codes as stated in Section 2-3.12 [105 ILCS 5/2-3.12].

If funding is available, this Task Force recommends that training be required, as designated by ISBE and coordinated through the Regional Offices of Education, for all Qualified Plan Reviewers that would educate them in the requirements of the Illinois School Code Section 2-3.12 [105 ILCS 5/2-3.12].
II. New Construction Inspections

New Construction Inspection Methods

Task Force Findings

The Task Force found that Public Act 094-0225 does not specifically require inspections to be made for new construction projects. However, provisions under existing state law, 105 ILCS 5/2-3.12, require the “ISBE to prepare for school boards, with the advice of the Department of Public Health, the Capital Development Board and the State Fire Marshal, a school building code that will conserve the health and safety and general welfare of the pupils and school personnel and others who use public school facilities”.

In addition, the Task Force found that previous ISBE rules under Section 180.220 require the regional superintendents to “make an inspection or cause such an inspection to be made” upon completion of a school construction project,” and that the recently-revised Health/Life Safety Code for Public Schools incorporates model building codes that require the following inspections to be conducted by a code official - the regional superintendent or designee -- during and at the completion of a construction project:

For projects that require compliance with the 2003 International Building Code (IBC), the following inspections are required to be conducted:

1. Footing and Foundation
2. Concrete Slab and Under-floor
3. Lowest Floor Elevations
4. Frame
5. Lathe and Gypsum Board
6. Fire Resistant Penetrations
7. Energy Efficiency
8. Final IBC

For projects that require compliance with the 2003 International Energy Conservation Code, the following inspections are required to be conducted:

1. Foundation (thermal envelope)
2. Framing (thermal envelope)
3. Insulation (thermal envelope)
4. Framing (thermal envelope)
5. Insulation (thermal envelope)
6. Rough-in (mechanical)
7. Final (mechanical)

For projects that require compliance with the 2003 International Fire Code inspections required to be conducted as determined by a fire code official - the Regional Superintendent or a designee.

For projects that require compliance with the 2003 International Fuel Gas Code the following inspections are required to be conducted:

1. Underground Piping
2. Rough-in
3. Final IFGC

For projects that require compliance with the 2003 International Mechanical Code, the following inspections are required to be conducted:

1. Underground Piping
2. Rough-in
3. Final

However, projects that must comply with the Illinois Accessibility Code, the Illinois Boiler and Pressure Vessel Safety Code and the Illinois Plumbing Code do not specifically require the regional superintendent to conduct on-site inspections to test compliance.

**Task Force Recommendations**

1. **Legislation.** Current provisions in state law found in 105 ILCS 5/2-3.12 are sufficient for the ISBE to proceed with the promulgation of the necessary administrative rules.

2. **Administrative Rules.** Administrative rules should be developed by ISBE to require that inspections are conducted within one business day of the Building Permit Holder’s notification.

   To assure consistency and thoroughness in conducting new construction inspections, the ISBE should establish rules for requiring Inspection Records, such as those provided in this report (Appendix C), be dated and signed by qualified inspectors as recommended in this report, and submitted with the Application for Occupancy Permit for each of the codes that apply to the project.

   Upon completion of the required inspections, the qualified inspector, whether it be a municipal inspector, an inspector from a professional inspection firm, or an inspector appointed by the design professional, should sign off on an Inspection Record, such as those provided in this report (Appendix C) stating that the inspections have been completed and found to be in compliance with approved plans and specifications for each of the Codes applicable to the project.

3. **Procedures When Local Expertise is Available.** All Regional Offices of Education (ROEs) should continue to develop relationships with all municipalities and fire protection districts within their region that register under the new law to conduct new construction inspections. If ROEs find that municipalities and fire protection districts within their region have not registered with them, they should make contact with the municipalities to encourage them to register with their office, even if multiple municipalities and fire protection districts are involved.

   If a Regional Superintendent finds that municipalities and fire protection districts have individuals on staff, who are qualified in accordance with the recommendations of this report, to conduct new construction inspections, according to the current requirements, the Regional Superintendent should seek formal agreements with local government leaders to conduct new construction inspections as required by the model codes.

   If adequate funding becomes available from the General Assembly, this Task Force recommends that unit of local government be given the option to be compensated for their services.
Procedures When Local Expertise is Not Available. If a Regional Superintendent finds that municipalities and fire protection districts do not have individuals on staff who are qualified in accordance with the recommendations of this report, to conduct new construction inspections, or find that local municipalities are unable to conduct inspections for new construction according to the current requirements, the Regional Superintendent will need to proceed as follows, depending on the availability of State funds:

- **With State Funding:** If adequate funding is available from the General Assembly, a Regional Superintendent should employ or contract with independent third parties that are qualified, in accordance with the recommendations of this report, to conduct new construction inspections according to current requirements.

- **Without State Funding:** If adequate funding is not made available by the General Assembly, a Regional Superintendent should meet with the Architect or Engineer of Record for each school construction project and verify that new construction inspections as required by the model codes have been completed for each of the applicable codes.

Documenting New Construction Inspections

**Task Force Findings**

In accordance with Public Act 094-0225, the Task Force was charged with reviewing the requirements for documenting inspections required by ISBE administrative rules. The Task Force reviewed the following current ISBE rules that require the documentation of on-site inspections for school construction projects:

23 Illinois Administrative Code 180, Health/Life Safety Code for Public Schools

**Section 180.50 Responsibilities of Regional Superintendent**

- **f)** The Regional Superintendent shall keep official records of applications received, permits and certificates issued, reports of inspections, and notices and orders issued. Such records shall be retained as long as the facilities to which they relate remain in existence.

- **g)** The Regional Superintendent shall report annually to the State Board of Education on or before October 1, summarizing all of the transactions relating to the administration and enforcement of this Part for the fiscal year ended on the preceding June 30. Such report shall be prepared on forms supplied by the State Board of Education...

In light of this rule, the Task Force members reviewed a draft form (Appendix D) that Regional Superintendents may use for specifically documenting the new on-site inspections required under the 2003 International Code Council family of codes.

**Task Force Recommendations**

1. **Legislation.** The provisions in Public Act 094-0225 are adequate authority for ISBE to proceed with the promulgation of necessary administrative rules.
2. Administrative Rules. Rules should be established to require ISBE to prescribe a form similar to the draft Construction Inspection Documentation Form (Appendix D), which requires Regional Superintendents to document the fact that Inspections have been conducted by qualified inspectors prior to the issuance of a Certificate of Occupancy to a school.

Qualifications for New Construction Inspectors

Task Force Findings

Regional Superintendents rely on design professionals to sign off and certify to the best of his/her knowledge that the construction complies with all applicable requirements under the Health/Life Safety Code for Public Schools.

The Task Force found that there are no current laws requiring new school construction inspectors to be qualified. However, Public Act 094-0225 requires the Task Force to make recommendations regarding training and accreditation of all individuals performing inspections of school construction projects.

Also, current ISBE rules do not identify any qualifications, training or accreditation requirements for any individuals except for licensed design professionals -- architect or engineers. The Task Force reviewed current administrative rules regarding the qualifications for architects, engineers, plumbers and asbestos abatement professionals, as well as a list of all occupations licensed, certified or registered by the State of Illinois and found at www.ides.state.il.us.

Task Force Recommendations

1. Legislation. The General Assembly should enact legislation requiring the ISBE to promulgate rules for qualifying construction inspectors.

2. Administrative Rules. The ISBE should develop rules and regulations that require Regional Superintendents or others under their authority when following PA 094-0225, (such as consultants, municipalities and fire protection districts) to be qualified in the conduct of on-site inspections based upon the model building codes referenced in the Health/Life Safety Code for Public Schools.

Here is the list of qualifications recommended for each of the different types of inspectors other than licensed design professionals who may alternatively be retained to conduct the required school inspections:

Building Code Inspector:
   o An individual who has successfully completed the B2 Commercial Building Inspector Examination administered by the International Code Council.

Energy Conservation Code Inspector:
   o An individual who has successfully completed the 77 Commercial Energy Inspector Examination administered by the International Code Council.

Fuel Gas Code Inspector:
   o A licensed plumber.
An individual who has successfully completed the M2 Commercial Mechanical Inspector Examination administered by the International Code Council.
An individual who has successfully completed the P2 Commercial Plumbing Inspector Examination administered by the International Code Council.

**Mechanical Code Inspector:**
- A qualified Mechanical Code Inspector is an individual who has successfully completed the M2 Commercial Mechanical Inspector Examination as administered by the International Code Council.

**Electrical Code Inspector:**
- A qualified Electrical Code Inspector is an individual who has successfully completed the E2 Commercial Electrical Inspector Examination as administered by the International Code Council.

**Fire Code Inspector:**
- As indicated in this report.

3. **Procedures.** The Regional Superintendents should continue to request the assistance of local units of government, provided they are properly qualified.
III. Annual Walk-Through Inspections

Annual Walk-Through Inspection Method

Task Force Findings

The Task Force found that the School Code -- 105 ILCS 5/3-14.21 -- requires "the regional superintendent to inspect and survey all public schools under his or her supervision and notify the board of education, or the trustees of schools in a district with trustees, in writing before July 30, whether or not the several schools in their district have been kept as required by law, using forms provided by the State Board of Education which are based on the Health/Life Safety Code for Public Schools adopted under Sections 2-3.12 [105 ILCS 5/2-3.12]. The regional superintendent shall report his or her findings to the State Board of Education on forms provided by the State Board of Education."

The Task Force found that administrative rules under 23 IAC 180.300 implement the annual inspection requirements of the School Code for all facilities owned or used for school purposes by a school district. The Task Force then reviewed the forms and procedures outlined in the Health Life Safety Handbook.

Task Force Recommendations

1. Legislation. The current law adequately addresses the requirements necessary for annual walk-through inspection methods.

2. Administrative Rules. The current administrative rules and prescribed forms adequately implement the annual inspection walk-through methods.

3. Coordination. The Regional Superintendents should coordinate their annual inspections with annual fire safety inspections made by a Qualified Fire Official and the ISBE should update the Health Life Safety Handbook to include additional procedures.

Documenting the Annual Walk-Through Inspections

Task Force Findings

The Task Force found that the School Code requires "the regional superintendent to inspect and survey all public schools under his or her supervision and notify the board or education, or the trustees of schools in a district with trustees, in writing before July 30, whether or not the several schools in their district have been kept as required by law, using forms provided by the State Board of Education which are based on the Health/Life Safety Code for Public Schools adopted under Sections 2-3.12 [105 ILCS 5/2-3.12]. The regional superintendent shall report his or her findings to the State Board of Education on forms provided by the State Board of Education."

The Task Force found that administrative rules under 23 IAC 180.300 implements the requirements of the School Code for all facilities owned or used for school purposes by a school district. In addition, the Task Force reviewed the forms and procedures outlined in the ISBE Health Life Safety Handbook.
Task Force Recommendations

1. Legislation. The Task Force believes that the current provision in the School Code is adequate authority for ISBE to proceed with this mandate.

2. Administrative Rules. The current administrative rules and prescribed forms adequately address the documentation of annual walk-through inspections.

3. Coordination. The Regional Superintendents should coordinate their annual inspections with annual fire safety inspections made by a qualified fire official and the ISBE should update the Health Life Safety Handbook to include additional procedures.

Qualifications for Annual Walk-Through Inspectors

Task Force Findings

The Task Force found that the current law does not specifically require Regional Superintendents to be trained for annual walk-through inspections of schools.

The Task Force also found that the current law does not specifically require Regional Superintendents to be trained and that PA 094-0225 requires the Task Force to make recommendations regarding training and accreditation. In addition, Regional Superintendents as a group have taken steps beyond the legal requirements to provide training for individual regional superintendents or their designees on the conduct of walk-through inspections.

Public Act 094-0225 requires the Task Force to make recommendations regarding training and accreditation issues for annual walk-through inspections.

Task Force Recommendations

1. Legislation. The General Assembly should enact legislation requiring ISBE to promulgate additional rules requiring Regional Superintendents or their designee to be trained in annual walk-through school inspections as recommended by a statewide organization representing Regional Superintendents of Schools.

2. Administrative Rules. Administrative rules should be established by the ISBE establishing qualifications for inspectors conducting annual walk-through inspections of schools on behalf of Regional Superintendents.

3. Training Updates. The Regional Superintendents and the ISBE should update the Health Life Safety Handbook to include additional procedures regarding the annual walk-through inspections of schools.
IV. Annual Fire Safety Inspections

Annual Fire Safety Inspection Method

Task Force Findings

Public Act 094-0225 requires the State Fire Marshal or a qualified fire official to conduct an annual fire safety inspection of each school building in Illinois. All inspections must be based on the fire safety code authorized in Section 2-3.12 of the School Code and any violations shall be reported in writing to the regional superintendent and school board within 15 days after the inspection has been conducted. These violation reports must reference the specific code sections where a discrepancy has been identified.

Further, PA 094-0225 requires the Task Force to recommend rules for adoption by the State Fire Marshal in cooperation with the State Board of Education. Regional Superintendents are establishing relationships with local fire districts to begin the coordination of annual fire safety inspections at schools.

Task Force Recommendations

1. Legislation. Current state law adequately addresses the requirements necessary for annual fire safety inspection methods.

2. Administrative Rules. In order to ensure consistency and thoroughness, administrative rules should be developed to outline procedures used by the Office of the State Fire Marshal in the conduct of annual fire safety inspections. Since PA 094-0225 does not specifically require annual fire safety inspections of facilities other than school buildings, rules should provide clarification on who will be conducting annual fire safety inspections in facilities other than school buildings or school property.

3. Procedures. The Regional Superintendents should continue to coordinate their annual inspections with annual fire safety inspections made by the Office of the State Fire Marshal or a "qualified" fire official.

Documenting Annual Fire Safety Inspections

Task Force Findings

Public Act 094-0225 does not require the documentation of the annual fire safety inspections, but does require that the inspection be based on the fire safety code authorized in the School Code and that any violations should be reported in writing to the regional superintendent and school board within 15 days after the inspection has been conducted. The report shall reference the specific code sections where a discrepancy has been detected.

Under PA 094-0225, the Task Force shall recommend administrative rules to be adopted by the State Fire Marshal in cooperation with the State Board of Education.

Task Force Recommendations
1. **Legislation.** The current provisions in the School Code -- 105 ILCS 5/2-3.12 and 5/3-14.12 -- is adequate authority for the ISBE and the OSFM to proceed with the necessary changes in administrative rules.

2. **Administrative Rules.** In order to ensure consistency and thoroughness, administrative rules should require a form -- prescribed by the Office of the State Fire Marshal -- be used to record the results of the annual fire safety inspections. In addition, the ISBE rules should require the form be submitted as part of an Annual Inspection Report.

3. **Current Procedures.** The Regional Superintendents should continue to coordinate their annual inspections with the annual fire safety inspections made by the Office of the State Fire Marshal or “qualified fire official”.

**Qualifications for Annual Fire Safety Inspectors**

**Task Force Findings**

The Task Force discussed and understands that the legal function of the Office of the State Fire Marshal is to conduct annual fire safety inspections under the authority of Sections 2-3.12 and 3-14.21 of the School Code as amended by PA 094-0225. However, PA 094-0225 permits the Office of the State Fire Marshal to delegate this duty to a “qualified fire official”. As required by PA 094-0225, the Task Force reviewed the following definition of a “qualified fire official” provided by the Office of the State Fire Marshal:

A qualified fire official is an individual who has one of the following certifications but not limited to:

- “Fire Prevention Officer” issued by Illinois Office of the State Fire Marshal
- “Fire Officer I” issued by Illinois Office of the State Fire Marshal
- “Fire Inspector I” issued by International Code Council
- “Fire Inspector II” issued by International Code Council
- “Fire Inspector I” issued by the National Fire Protection Association
- “Fire Inspector II” issued by National Fire Protection Association

**Task Force Recommendations**

1. **Legislation.** The current provisions in the School Code -- 105 ILCS 5/2-3.12 -- are adequate authority for OSFM to proceed with rules for establishing requirements for a “Qualified Fire Official”.

2. **Administrative Rules.** The Task Force recommends that the Office of the State Fire Marshal establish rules that determine the qualifications for annual fire inspectors for school buildings.
# 2003 INTERNATIONAL MECHANICAL CODE®
AND THE 2003 INTERNATIONAL FUEL GAS CODE®

## PLAN REVIEW RECORD

### JURISDICTION:
(City, County, Township, etc.)

### BUILDING LOCATION:
(Street address)

### BUILDING DESCRIPTION:

### REVIEWED BY:

Numerals indicated in parenthesis are applicable code sections of the 2003 International Mechanical Code and the 2003 International Fuel Gas Code. The plan review accomplished as indicated in this record is limited to those code sections specifically identified herein. This record references commonly applicable code sections. It does not reference all code provisions which may be applicable to specific buildings. This record is designed to be used only by those who are knowledgeable and capable of exercising competent judgment in evaluating construction documents for code compliance.

## CORRECTION LIST

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GENERAL REGULATIONS

- Construction documents to be submitted (106.3*, 106.3.1*)
- Energy utilization (301.2*)
- Equipment approval (301.3*, 301.4*, 301.5*, 301.6)
- Prohibited locations (303.1*, 303.2*, 303.3*, 303.8)
- Equipment installation (301.10*-301.15*, 303.4*, 303.5*, 303.7*, 306*; 304.1, 304.7, 304.8, 304.9; IFGC 301.8, 301.9, 305.1, 305.6)
- Hazardous location installation (304.3, 304.4, 304.5, 304.6; IFGC 305.2, 305.3, 305.4, 305.5)
- Outdoor installation (303.6*, 306.5*, 306.6*; 304.10)
- Piping support (305; IFGC 415.1)
- Condensate disposal (307*; IFGC 503.9)
- Clearance reduction (308*)

VENTILATION
MECHANICAL VENTILATION OUTDOOR AIR REQUIREMENTS (TABLE 403.3)

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<td>Actual Outdoor Air (cfm)</td>
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FOOTNOTES:
1. B x C/1000
2. D x E or B x E, As Applicable

GENERAL
- Exits (401.4)
- Outside air exhaust and intake location (401.5, 501.2, 918.6; IFGC 618.5)
- Outside opening protection (401.6)

NATURAL VENTILATION
- Ventilation Requirements (402)
- Contaminants Exhausted (*IBC 1203.4.2*)

MECHANICAL VENTILATION
- Ventilation air requirements (401.2, 401.3 403.1, 403.2, 403.3, Table 403.3)
- Transfer air (403.2.2)
- System operation (403.3.1)
- System control (405.1)
- Public garages (404, 502.13)
- Uninhabited spaces (406.1)
EXHAUST SYSTEMS

REQUIRED SYSTEMS

- Battery-charging areas (502.3, 502.4, 502.5)
- Application of flammable finishes (502.7)
- Hazardous materials (502.8, 502.9, 502.10)
- Motor vehicle operation (502.14)
- Motors and fans (503)
- Clothes dryer exhaust (504; IFGC 61.4)
- Domestic kitchen exhaust equipment (505)
- Hazardous exhaust systems (510)
- Dust, stock and refuse conveyor systems (511)
- Subslab soil exhaust systems (512)
- Smoke control systems (513)
- Energy recovery ventilation systems (514)

COMMERCIAL KITCHEN GREASE DUCTS AND EXHAUST EQUIPMENT

- Exhaust fans (506.5.1)
- Duct materials (506.3.1, 503.3.1.2)
- Duct design and velocity (506.3.4, 506.3.5)
- Duct construction (506.2, 506.3.2, 506.3.3, 506.3.7)
- Cleanouts (506.3.8, 506.3.9, 506.3.11)
- Duct enclosure (506.3.10, 507.10)
- Clearance to combustibles (506.3.6, 506.5.4)
- Exhaust outlets (506.3.12, 506.5.2, 506.5.3, 506.5.5)

COMMERCIAL KITCHEN TYPE I HOODS AND DUCTS

- Where required (507.1, 507.2)
- Factory-built commercial kitchen hoods (507.1, 507.16)
- Hood construction (507.4, 507.6, 507.7.1, 507.8, 507.15)
- Clearance to combustibles (507.9)
- Grease filters (507.11)
- Canopy-type hoods (507.12, 507.13)
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COMMERCIAL KITCHEN TYPE II HOODS AND DUCTS

- Where required (507.1, 507.2)
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- Where required (509.1)
- Type of system (IBC 904.5, 904.6, 904.8, 904.11; International Fire Code 904.5, 904.6, 904.8, 904.11)
- Actuation and interconnection (IBC 904.11.1, 904.11.2; International Fire Code 904.11.1, 904.11.2)

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- Plenums, general (602.1, 602.2, 602.3)
- Air movement in corridors (601.2, 601.2.1, 601.3)
- Duct construction and insulation (603.1-603.5, 604)
- Flexible air ducts and air connectors (603.6)
- Duct installation (603.7 - 603.17)
- Air filters (605)
- Duct smoke detectors (606)
- Fire, smoke and ceiling radiation dampers (302.2*; 607)
COMBUSTION AIR

ALL APPLIANCES EXCEPT GAS-FIRED

- Prohibited sources (701.5)

INSIDE AIR

- Unusually tight construction (202)
- Unconfined space (202, 702.1, 702.2)
- Openings and adjacent spaces (702.3)

OUTDOOR AIR

- Openings (number and location) (703.1, 703.1.1)
- Size of direct, horizontal or vertical openings (703.1.2, 703.1.3, 703.1.4)

COMBINED USE OF INSIDE AND OUTDOOR AIR (CONDITION 1)

- Openings (number and location) (704.1, 704.1.1)
- Ratio of direct, horizontal or vertical openings (704.1.2, 704.1.3, 704.1.4)
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- Direct connection/direct-vent (707.1)
- Combustion air ducts (708.1)
- Opening obstructions, location and protection (709, 710.1)

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- Indoor combustion air (IFGC 304.5, 304.5.1, 304.5.2)
- Spaces on the same story (IFGC 305.3.1)
- Spaces in different stories (IFGC 340.5.3.2)

OUTDOOR AIR

- Two-permanent openings method (IFGC 304.6, 304.6.1)
- One-permanent openings method (IFGC 304.6, 304.6.2)

COMBINED USE OF INSIDE AND OUTDOOR AIR

- Indoor openings (IFGC 304.5.3, 304.7.1)
- Outdoor opening location (IFGC 304.6, 304.7.2)
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- Category II, III, IV gas appliance venting systems (IFGC 501.14, 502.1, 503.4, 503.6.9.2, 503.11)

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- Where required (IFGC 503.2, 503.3)
- Approval (IFGC 502.1)
- Vent application (IFGC 502.3, 503.4)
- Installation (IFGC 502.4, 502.5, 502.6, 503.6.1)
- Gas vent termination (IFGC 503.6.3, 503.6.6, 503.6.8, 503.8)
CHIMNEYS AND VENTS (cont'd.)

VENTS (GAS-FIRED APPLIANCES) (cont'd.)

- Minimum vent heights *(IFGC 503.6.7)*
- Gas vents installed within masonry chimneys *(IFGC 503.6.5, 504.3.19)*
- Single-wall vent *(IFGC 503.7)*

SIZING OF CATEGORY I GAS APPLIANCE VENTING SYSTEMS

- Sizing of venting system for a single gas appliance *(IFGC 503.6.9, 504.2)*
- Chimney and vent location *(IFGC 504.2.9)*
- Sizing of venting system for two or more gas appliances *(IFGC 503.6.9, 504.3)*
- Multistory gas vents *(IFGC 503.6.10)*

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- Materials *(IFGC 503.10.2)*
- Size/location *(IFGC 503.10.3.1, 503.10.3.2, 504.2.10, 504.2.11)*
- Connectors serving two or more appliances *(IFGC 503.10.3.3, 503.10.3.4, 503.10.4, 504.3.2, 504.3.3, 504.3.4, 504.3.21)*
- Installation *(IFGC 503.10.9, 503.10.10, 503.10.11, 503.10.14, 503.10.15, 503.10.16, 503.13, 503.14, 503.15)*

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- Pellet fuel-burning appliances *(904)*
- Fireplace stoves and room heaters *(905)*
- Factory-built barbecue appliances *(906)*
- Decorative gas-fired appliances for installation in vented fireplaces *(IFGC 602, 634)*
- Gas-fired log lighters *(IFGC 603)*
- Vented gas-fired decorative appliances *(IFGC 604)*
- Vented gas fireplace heaters *(IFGC 605)*
- Incinerators and crematories *(907; IFGC 606)*
- Cooling towers, evaporative condensers and fluid coolers *(908)*
- Commercial-industrial incinerators *(IFGC 607)*
- Vented wall furnaces *(909; IFGC 608)*
- Floor furnaces *(910; IFGC 609)*
- Duct furnaces *(911; IFGC 610)*
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- Recirculating direct-fired industrial air heaters *(IFGC 612)*
- Infrared radiant heaters *(912; IFGC 630)*
- Clothes dryers *(913; IFGC 613)*
- Illuminating appliances *(IFGC 628)*
- Sauna heaters *(914; IFGC 615)*
- Engine and gas turbine-powered equipment and appliances *(915; IFGC 616)*
- Pool and spa heaters *(916; IFGC 617)*
- Cooking appliances *(917; IFGC 623)*
- Forced-air warm-air furnaces *(918; IFGC 618)*
- Conversion burners *(919; IFGC 619)*
- Unit heaters *(920; IFGC 620)*
- Unvented room heaters *(IFGC 621)*
- Vented room heaters *(921; IFGC 622)*
- Kerosene and oil-fired stoves *(922)*
- Small ceramic kilns *(923; IFGC 629)*
- Stationary fuel cell power plants *(924)*
- Masonry heaters *(925)*
- Refrigerators *(IFGC 625)*
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- Fuel cell power plants *(IFGC 633)*

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- Steam blowoff valve *(1008)*
- Hot water expansion tank *(1009)*
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- Refrigerant system classification *(1103.3)*
- Refrigerant classification *(1103.1)*
- Occupancy classification *(1103.2)*
- Quantity and application of refrigerant *(Table 1103.1, Table 1104.3.2, 1104.3, 1104.4)*
- Machinery room, general requirements *(1105)*
- Machinery room, special requirements *(1106)*
- Refrigerant piping *(1107)*

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- Joints and connections *(1203)*
- Pipe insulation *(1204)*
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- Piping installation *(1206)*
- Transfer fluid *(1207)*
- Embedded piping *(1209)*
# FUEL-GAS PIPING

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# FUEL OIL PIPING AND STORAGE

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# APPENDICES A*, B*, IFGC C AND D.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Appendices adopted (101.2.1; IFGC 101.3)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Compliance verified</td>
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# NOTES
<table>
<thead>
<tr>
<th>Code</th>
<th>Plan Review Record</th>
</tr>
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<tbody>
<tr>
<td>2003 International Building Code Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 International Building Code Structural Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 International Electrical Code Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 International Energy Conservation Code Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 International Fire Code Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 International Fuel Gas Code Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 International Mechanical Code Plan Review Record</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2004 Illinois Accessibility Code Plan Review Statement</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2004 Illinois Plumbing Code Plan Review Statement</td>
<td>Plan Review Completion Date</td>
</tr>
<tr>
<td>2003 Boiler and Pressure Vessel Safety Code Plan Review Statement</td>
<td>Plan Review Completion Date</td>
</tr>
</tbody>
</table>
Envelope Compliance Certificate
2003 IECC
COMcheck-EZ Software Version 3.0 Release 1
Data filename: C:\Program Files\Check\COMcheck-EZ\Nebraska example.cck

Section 1: Project Information

Project Name:
COMcheck-EZ Example Building
Designer/Contractor:
Eric Makela
Document Author:
Eric Makela

Section 2: General Information

Building Location (for weather data):
Ashland, Nebraska
Climate Zone:
13b
Heating Degree Days (base 65 degrees F):
6406
Cooling Degree Days (base 65 degrees F):
1030
Project Type:
New Construction
Window / Wall Ratio:
0.21

Activity Type(s)
Office
4520
Convention, Conference or Meeting Center
620
Corridor, Restroom, Support Area
1400
Storage, Industrial and Commercial
2520
Industrial Work, < 20 ft Ceiling Height
2700
Lobby - Other
1240

Section 3: Requirements Checklist

Bldg. | Dept. | Use | Floor Area |
--- | --- | --- | --- |

**Air Leakage, Component Certification, and Vapor Retarder Requirements**

[ ] 1. All joints and penetrations are caulked, gasketed, weather-stripped, or otherwise sealed.

[ ] 2. Windows, doors, and skylights certified as meeting leakage requirements.

[ ] 3. Component R-values & U-factors labeled as certified.

[ ] 4. Stair, elevator shaft vents, and other dampers integral to the building envelope are equipped with motorized dampers.

[ ] 5. Cargo doors and loading dock doors are weather sealed.

[ ] 6. Recessed lighting fixtures are: (i) Type IC rated and sealed or gasketed; or (ii) installed inside an appropriate air-tight assembly with a 6.5 inch clearance from combustible materials and with 3 inches clearance from insulation material.

[ ] 7. Building entrance doors have a vestibule and equipped with closing devices.

Exceptions:
- Building entrances with revolving doors.
- Doors that open directly from a space less than 3000 sq. ft. in area.

[ ] 8. Vapor retarder installed.
## Climate-Specific Requirements

<table>
<thead>
<tr>
<th>Component Name/Description</th>
<th>Gross Area</th>
<th>Cavity R-Value</th>
<th>Cont. R-Value</th>
<th>Proposed U-Factor</th>
<th>Budget U-Factor</th>
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</thead>
<tbody>
<tr>
<td><strong>NORTH:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Wall 1 copy 1: Solid Concrete or Masonry &lt;= 8&quot;</td>
<td>1500</td>
<td>19.0</td>
<td>0.0</td>
<td>0.118</td>
<td>0.083</td>
</tr>
<tr>
<td>Furring: Metal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window 1 copy 1: Metal Frame, Double Pane with Low-E</td>
<td>375</td>
<td>---</td>
<td>---</td>
<td>0.600</td>
<td>0.569</td>
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<tr>
<td>Tinted, SHGC 0.63, PF 0.20</td>
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<tr>
<td>Window 2 copy 1: Metal Frame, Double Pane</td>
<td>56</td>
<td>---</td>
<td>---</td>
<td>0.700</td>
<td>0.569</td>
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<tr>
<td>Clear, SHGC 0.72, PF 0.20</td>
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<td></td>
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</tr>
<tr>
<td>Door 1 copy 1: Glass, Clear, SHGC 0.58, PF 0.20</td>
<td>42</td>
<td>---</td>
<td>---</td>
<td>0.700</td>
<td>0.569</td>
</tr>
<tr>
<td>Door 3 copy 1: Solid</td>
<td>40</td>
<td>---</td>
<td>---</td>
<td>0.200</td>
<td>0.133</td>
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<td>Basement Wall 1: Solid Concrete or Masonry &lt;= 8&quot;</td>
<td>2000</td>
<td>---</td>
<td>5.0</td>
<td>0.157</td>
<td>0.107</td>
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<td>Furring: None, Wall Ht 12.5, Depth B.G. 7.0</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EAST:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Wall 1 copy 2: Solid Concrete or Masonry &lt;= 8&quot;</td>
<td>1500</td>
<td>19.0</td>
<td>0.0</td>
<td>0.118</td>
<td>0.083</td>
</tr>
<tr>
<td>Furring: Metal</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window 1 copy 2: Metal Frame, Double Pane with Low-E</td>
<td>375</td>
<td>---</td>
<td>---</td>
<td>0.600</td>
<td>0.569</td>
</tr>
<tr>
<td>Tinted, SHGC 0.63, PF 0.20</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Window 2 copy 2: Metal Frame, Double Pane</td>
<td>56</td>
<td>---</td>
<td>---</td>
<td>0.700</td>
<td>0.569</td>
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<tr>
<td>Clear, SHGC 0.72, PF 0.20</td>
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</tr>
<tr>
<td>Door 1 copy 2: Glass, Clear, SHGC 0.58, PF 0.20</td>
<td>42</td>
<td>---</td>
<td>---</td>
<td>0.700</td>
<td>0.569</td>
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<tr>
<td>Door 2 copy 2: Overhead</td>
<td>288</td>
<td>---</td>
<td>---</td>
<td>0.140</td>
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</tr>
<tr>
<td>Door 3 copy 2: Solid</td>
<td>40</td>
<td>---</td>
<td>---</td>
<td>0.200</td>
<td>0.133</td>
</tr>
<tr>
<td><strong>SOUTH:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Wall 1: Solid Concrete or Masonry &lt;= 8&quot;</td>
<td>1500</td>
<td>19.0</td>
<td>0.0</td>
<td>0.118</td>
<td>0.083</td>
</tr>
<tr>
<td>Furring: Metal</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Door 1: Glass, Clear, SHGC 0.58, PF 0.20</td>
<td>42</td>
<td>---</td>
<td>---</td>
<td>0.700</td>
<td>0.569</td>
</tr>
<tr>
<td>Window 1: Metal Frame, Double Pane with Low-E</td>
<td>375</td>
<td>---</td>
<td>---</td>
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<td>0.569</td>
</tr>
<tr>
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</tr>
<tr>
<td>Window 2: Metal Frame, Double Pane</td>
<td>56</td>
<td>---</td>
<td>---</td>
<td>0.700</td>
<td>0.569</td>
</tr>
<tr>
<td>Clear, SHGC 0.72, PF 0.20</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door 3: Solid</td>
<td>40</td>
<td>---</td>
<td>---</td>
<td>0.200</td>
<td>0.133</td>
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<td><strong>WEST:</strong></td>
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<tr>
<td>Exterior Wall 1 copy 3: Solid Concrete or Masonry &lt;= 8&quot;</td>
<td>1500</td>
<td>19.0</td>
<td>0.0</td>
<td>0.118</td>
<td>0.083</td>
</tr>
<tr>
<td>Furring: Metal</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UNSPECIFIED ORIENTATION:</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof 1: Metal Roof without Thermal Blocks</td>
<td>6112</td>
<td>0.0</td>
<td>26.1</td>
<td>0.037</td>
<td>0.052</td>
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<tr>
<td>Skylight 1: Wood Frame: Double Pane with Low-E</td>
<td>112</td>
<td>---</td>
<td>---</td>
<td>0.740</td>
<td>0.052</td>
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<td>Tinted, SHGC 0.58</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Interior Wall 2: Metal Frame, 16&quot; o.c.</td>
<td>812</td>
<td>19.0</td>
<td>0.0</td>
<td>0.110</td>
<td>0.133</td>
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<tr>
<td>Floor 1: Slab-On-Grade: Unheated, Vertical 2 ft.</td>
<td>160</td>
<td>---</td>
<td>8.0</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

**Envelope PASSES:** Design 10% better than code
Section 4: Compliance Statement

The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the 2003 IECC requirements in COMcheck-EZ Version 3.0 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

Principal Envelope Designer-Name  Signature  Date
Lighting Compliance Certificate
2003 IECC
COMcheck-EZ Software Version 3.0 Release 1
Data filename: C:\Program Files\Check\COMcheck-EZ\Nebraska example.cck

Section 1: Project Information

Project Name: COMcheck-EZ Example Building
Designer/Contractor: Eric Makela
Document Author: Eric Makela

Section 2: General Information

Building Use Description by: Activity Type
Project Type: New Construction

Activity Types(s) Floor Area
Office 4520
Convention, Conference or Meeting Center 620
Corridor, Restroom, Support Area 1400
Storage, Industrial and Commercial 2520
Industrial Work, < 20 ft Ceiling Height 2700
Lobby - Other 1240

Section 3: Requirements Checklist

Bldg. Dept. Use

[ ] Interior Lighting
1. Total actual watts must be less than or equal to total allowed watts
   Allowed Watts Actual Watts Compiles(Y/N)
   13906 13438 YES

[ ] Exterior Lighting
2. Efficacy greater than 45 lumens/W
   Exceptions:
   Specialized lighting highlighting features of historic buildings; signage; safety or security lighting;
   low-voltage landscape lighting.

[ ] Controls, Switching, and Wiring
3. Independent controls for each space (switch/occupancy sensor).
   Exception: Areas that must be continuously illuminated.
4. Master switch at entry to hotel/motel guest room.
5. Individual dwelling units separately metered.
6. Each space provided with a manual control to provide uniform light reduction capability.
   Exceptions:
   Only one luminaire in space; An occupant-sensing device controls the area;
   The area is a corridor, storeroom, restroom, or lobby; Areas that must be continuously illuminated;
Areas greater than 250 sq.ft; Areas that use less than 0.6 Watts/sq.ft.

7. Photocell/astronomical time switch on exterior lights.
   Exceptions: Areas requiring lighting during daylight hours

8. Tandem wired one-lamp and three-lamp ballasted luminaires.
   Exceptions:
   Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 4: Compliance Statement

The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2003 IECC, Chapter 8, requirements in COMcheck-EZ Version 3.0 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

________________________________________  ___________________________  ________________
Principal Lighting Designer-Name  Signature  Date
Lighting Application Worksheet
2003 IECC
COMcheck-EZ Software Version 3.0 Release 1

Section 1: Allowed Lighting Power Calculation

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Floor Area</td>
<td>Total Allowed</td>
<td>Allowed Watts</td>
</tr>
<tr>
<td></td>
<td>(ft^2)</td>
<td>Watts (watts/ft^2)</td>
<td>(B x C)</td>
</tr>
<tr>
<td>Office</td>
<td>4520</td>
<td>1.1</td>
<td>4972</td>
</tr>
<tr>
<td>Convention, Conference</td>
<td>620</td>
<td>1.3</td>
<td>806</td>
</tr>
<tr>
<td>or Meeting Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corridor, Restroom,</td>
<td>1400</td>
<td>0.9</td>
<td>1260</td>
</tr>
<tr>
<td>Support Area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage, Industrial and</td>
<td>2520</td>
<td>0.8</td>
<td>2016</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
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<tr>
<td>Industrial Work, &lt;20 ft</td>
<td>2700</td>
<td>1.2</td>
<td>3240</td>
</tr>
<tr>
<td>Ceiling Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lobby - Other</td>
<td>1240</td>
<td>1.3</td>
<td>1612</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Total Allowed Watts</td>
<td>13906</td>
<td></td>
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</tr>
</tbody>
</table>

Section 2: Actual Lighting Power Calculation

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fixture Description /</td>
<td>Lamps/</td>
<td># of</td>
<td>Fixtures</td>
<td>Watt.</td>
</tr>
<tr>
<td>ID</td>
<td>Lamp Description / Wattage Per Lamp / Ballast</td>
<td>Fixture</td>
<td>Fixtures</td>
<td>Watt.</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>2x4 Troffer, parabolic louver / 48&quot; T8 32W / Electronic</td>
<td>3</td>
<td>51</td>
<td>95</td>
<td>4845</td>
</tr>
<tr>
<td>B</td>
<td>2x4 Troffer, parabolic louver / 48&quot; T8 32W / Electronic</td>
<td>3</td>
<td>1</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>C</td>
<td>4 ft. Wall mount, wrap-around / 48&quot; T8 32W / Electronic</td>
<td>2</td>
<td>4</td>
<td>65</td>
<td>260</td>
</tr>
<tr>
<td>D</td>
<td>4 ft. Strip, surface mount / 48&quot; T8 32W / Electronic</td>
<td>1</td>
<td>4</td>
<td>32</td>
<td>128</td>
</tr>
<tr>
<td>E</td>
<td>8 ft. Industrial, pendant mount / 96&quot; T8 75W / Electronic</td>
<td>2</td>
<td>30</td>
<td>130</td>
<td>3900</td>
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<tr>
<td>F</td>
<td>Down light, twin tube / Twin Tube 18W / Magnetic</td>
<td>2</td>
<td>31</td>
<td>46</td>
<td>1426</td>
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<tr>
<td>G</td>
<td>Recessed wall washer / Incandescent 150W</td>
<td>1</td>
<td>2</td>
<td>150</td>
<td>300</td>
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<tr>
<td>H</td>
<td>Accent track lighting / Incandescent 50W</td>
<td>1</td>
<td>5</td>
<td>50</td>
<td>250</td>
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<tr>
<td>I</td>
<td>Recessed mtl halide down light / Metal Halide 50W / Magnetic</td>
<td>1</td>
<td>2</td>
<td>67</td>
<td>134</td>
</tr>
<tr>
<td>J</td>
<td>Low bay, pendant mount / High-Pressure Sodium 150W / Magnetic</td>
<td>1</td>
<td>6</td>
<td>190</td>
<td>1140</td>
</tr>
<tr>
<td>K</td>
<td>48&quot; T8 32W / Electronic</td>
<td>3</td>
<td>10</td>
<td>96</td>
<td>960</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Total Actual Watts</td>
<td>13438</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Section 3: Compliance Calculation
If the Total Allowed Watts minus the Total Actual Watts is greater than or equal to zero, the building complies.

Total Allowed Watts = 13906
Total Actual Watts = 13438
Project Compliance = 468

Lighting PASSES: Design 3% better than code
Mechanical Compliance Certificate
2003 IECC
COMcheck-EZ Software Version 3.0 Release 1
Data filename: C:\Program Files\Check\COMcheck-EZ\Nebraska example.cck

Section 1: Project Information
Project Name: COMcheck-EZ Example Building
Designer/Contractor: Eric Makela
Document Author: Eric Makela

Section 2: General Information
Building Location (for weather data): Ashland, Nebraska
Climate Zone: 13b
Heating Degree Days (base 65 degrees F): 6406
Cooling Degree Days (base 65 degrees F): 1030
Project Type: New Construction

Section 3: Mechanical Systems List

<table>
<thead>
<tr>
<th>Quantity</th>
<th>System Type &amp; Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>RT-2 &amp; RT-3 - Pkg. gas/elec.: Heating: Central Furnace, Gas / Cooling: Field-Assembled DX System, Capacity &gt;=90 - &lt;135 kBtu/h, Air-Cooled Condenser / Single Zone</td>
</tr>
<tr>
<td>1</td>
<td>CU-1 - Condensing unit: Cooling: Field-Assembled DX System, Capacity &gt;=135 - &lt;240 kBtu/h, Air-Cooled Condenser / Single Zone</td>
</tr>
<tr>
<td>1</td>
<td>UH-1 - Gas unit heater: Heating: Unit Heater, Gas</td>
</tr>
<tr>
<td>1</td>
<td>F-1 - Gas furnace: Heating: Central Furnace, Gas / Single Zone</td>
</tr>
</tbody>
</table>

Section 4: Requirements Checklist

<table>
<thead>
<tr>
<th>Bldg.</th>
<th>Dept.</th>
<th>Use</th>
<th>Requirements Specific To: RT-2 &amp; RT-3 - Pkg. gas/elec.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1. Newly purchased heating equipment meets the heating efficiency requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Specified equipment consists of field-assembled components - efficiency documentation provided</td>
</tr>
</tbody>
</table>

Requirements Specific To: CU-1 - Condensing unit

|       |       |     | 1. Specified equipment consists of field-assembled components - efficiency documentation provided |
|       |       |     | 2. Integrated air economizer required |
|       |       |     | - Exception: Air/evap condenser and extensive outside-air filtration |

Requirements Specific To: UH-1 - Gas unit heater

|       |       |     | 1. Equipment minimum efficiency: |
|       |       |     | Unit Heater (Gas): 80% Ec |

Requirements Specific To: F-1 - Gas furnace
1. Newly purchased heating equipment meets the heating efficiency requirements

Generic Requirements: Must be met by all systems to which the requirement is applicable

1. Load calculations per 1997 ASHRAE Fundamentals

2. Plant equipment and system capacity to greater than needed to meet loads
   - Exception: Standby equipment automatically off when primary system is operating
   - Exception: Multiple units controlled to sequence operation as a function of load

3. Minimum one temperature control device per system

4. Minimum one humidity control device per installed humidification/dehumidification system

5. Thermostat controls has 5 deg. F deadband
   - Exception: Thermostats requiring manual changeover between heating and cooling

6. Automatic Controls: Setback to 55 deg. F (heat) and 85 deg. F (cool); 7-day clock, 2-hour occupant override, 10-hour backup
   - Exception: Continuously operating zones
   - Exception: 2 kW demand or less, submit calculations

7. Automatic shut-off dampers on exhaust systems and supply systems with airflow >3,900 cfm

8. Outside-air source for ventilation; system capable of reducing OSA to required minimum

9. R-5 supply and return air duct insulation in unconditioned spaces
   R-8 supply and return air duct insulation outside the building
   R-8 insulation between ducts and the building exterior when ducts are part of a building assembly
   - Exception: Ducts located within equipment
   - Exception: Ducts with interior and exterior temperature difference not exceeding 15 deg. F.

10. Ducts sealed - longitudinal seams on rigid ducts; transverse seams on all ducts;
    UL 181A or 181B tapes and mastics
    - Exception: Continuously welded and locking-type longitudinal joints and seams on ducts
     operating at static pressures less than 2 inches w.g. pressure classification

11. Mechanical fasteners and sealants used to connect ducts and air distribution equipment

12. Hot water pipe insulation: 1 in. for pipes <=1.5 in. and 2 in. for pipes >1.5 in.
    Chilled water/refrigerant/brine pipe insulation: 1 in. for pipes <=1.5 in. and 1.5 in. for pipes >1.5 in.
    Steam pipe insulation: 1.5 in. for pipes <=1.5 in. and 3 in. for pipes >1.5 in.
    - Exception: Piping within HVAC equipment
    - Exception: Fluid temperatures between 55 and 105 deg. F
    - Exception: Fluid not heated or cooled
    - Exception: Runouts <=4 ft in length

13. Operation and maintenance manual provided to building owner

14. Balancing devices provided in accordance with IMC 603.15

15. Stair and elevator shaft vents are equipped with motorized dampers

Section 5: Compliance Statement

The proposed mechanical design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2003 IECC requirements in COMcheck-EZ Version 3.0 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

Principal Mechanical Designer-Name ___________________________ Signature ___________________________ Date ___________________________
Mechanical Requirements Description

2003 IECC

The following list provides more detailed description of the requirements in Section 4 of the Mechanical Compliance Certificate.

Requirements Specific To: RT-2 & RT-3 - Pkg. gas/elec.
1. The specified heating equipment is covered by Federal minimum efficiency requirements. New equipment of this type can be assumed to meet or exceed ASHRAE 90.1 Code requirements for equipment efficiency.
2. The specified cooling system consists of field-assembled components. Documentation must be submitted showing the system meets ASHRAE 90.1 Code equipment efficiency requirements for a comparable package equipment type and capacity range.

Requirements Specific To: CU-1 - Condensing unit
1. The specified cooling system consists of field-assembled components. Documentation must be submitted showing the system meets ASHRAE 90.1 Code equipment efficiency requirements for a comparable package equipment type and capacity range.
2. An integrated air economizer is required for individual cooling systems over 65 kBTU/h in the selected climate. An integrated economizer allows simultaneous operation of outdoor-air and mechanical cooling.
   - Exception: An economizer is not required due to unusual outside air filtration requirements. Section 403.3 of the IMC sets minimum outside air ventilation requirements and requirements for filtration or purification if the outside air does not meet minimum air-quality requirements. Economizers are not required for systems having air- or evaporatively cooled condensers (i.e., those that cannot use water economizers) when the outside air pollutants can be classified as "unusual."

Requirements Specific To: UH-1 - Gas unit heater
1. The specified heating and/or cooling equipment is covered by the ASHRAE 90.1 Code and must meet the following minimum efficiency: Unit Heater (Gas): 80% Ec

Requirements Specific To: F-1 - Gas furnace
1. The specified heating equipment is covered by Federal minimum efficiency requirements. New equipment of this type can be assumed to meet or exceed ASHRAE 90.1 Code requirements for equipment efficiency.

Generic Requirements: Must be met by all systems to which the requirement is applicable
1. Design heating and cooling loads for the building must be determined using procedures equivalent to those in Chapters 27 and 28 of the ASHRAE Handbook of Fundamentals or an approved equivalent calculation procedure.
2. All equipment and systems must be sized to be greater than needed to meet calculated loads. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.
   - Exception: The equipment and/or system capacity may be greater than calculated loads for standby purposes. Standby equipment must be automatically controlled to be off when the primary equipment and/or system is operating.
   - Exception: Multiple units of the same equipment type whose combined capacities exceed the calculated load are allowed if they are provided with controls to sequence operation of the units as the load increases or decreases.
3. Each heating or cooling system serving a single zone must have its own temperature control device.
4. Each humidification system must have its own humidity control device.
5. Thermostats controlling both heating and cooling must be capable of maintaining a 5 degree F deadband (a range of temperature where no heating or cooling is provided).
   - Exception: Deadband capability is not required if the thermostat does not have automatic changeover capability between heating and cooling.
6. The system or zone control must be a programmable thermostat or other automatic control meeting the following criteria:a) capable of setting back temperature to 55 degree F during heating and setting up to 85 degree F during coolingb) capable of automatically setting back or shutting down systems during unoccupied hours using 7 different day
schedulec) have an accessible 2-hour occupant overrided) have a battery back-up capable of maintaining programmed settings for at least 10 hours without power.
- Exception: A setback or shutoff control is not required on thermostats that control systems serving areas that operate continuously.
- Exception: A setback or shutoff control is not required on systems with total energy demand of 2 kW (6,826 Btu/h) or less.
7. Outdoor-air supply systems with design airflow rates >3,000 cfm of outdoor air and all exhaust systems must have dampers that are automatically closed while the equipment is not operating.
8. The system must supply outside ventilation air as required by Chapter 4 of the International Mechanical Code. If the ventilation system is designed to supply outdoor-air quantities exceeding minimum required levels, the system must be capable of reducing outdoor-air flow to the minimum required levels.
9. Air ducts must be insulated to the following levels: a) Supply and return air ducts for conditioned air located in unconditioned spaces (spaces neither heated nor cooled) must be insulated with a minimum of R-5. Unconditioned spaces include attics, crawl spaces, unheated basements, and unheated garages. b) Supply and return air ducts and plenums must be insulated to a minimum of R-8 when located outside the building. c) When ducts are located within exterior components (e.g., floors or roofs), minimum R-8 insulation is required only between the duct and the building exterior.
- Exception: Duct insulation is not required on ducts located within equipment.
- Exception: Duct insulation is not required when the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15 degree F.
10. All joints, longitudinal and transverse seams, and connections in ductwork must be securely sealed using weldments; mechanical fasteners with seals, gaskets, or mastic; mesh and mastic sealing systems; or tapes. Tapes and mastic must be listed and labeled in accordance with UL 181A or UL 181B.
- Exception: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches w.g. pressure classification.
11. Mechanical fasteners and seals, mastics, or gaskets must be used when connecting ducts to fans and other air distribution equipment, including multiple-zone terminal units.
12. All pipes serving space-conditioning systems must be insulated as follows:
   Hot water piping for heating systems:
   - 1 in. for pipes <=1 1/2-in. nominal diameter
   - 2 in. for pipes >1 1/2-in. nominal diameter.
   Chilled water, refrigerant, and brine piping systems:
   - 1 in. insulation for pipes <=1 1/2-in. nominal diameter
   - 1 1/2 in. insulation for pipes >1 1/2-in. nominal diameter.
   Steam piping:
   - 1 1/2 in. insulation for pipes <=1 1/2-in. nominal diameter
   - 3 in. insulation for pipes >1 1/2-in. nominal diameter.
- Exception: Pipe insulation is not required for factory-installed piping within HVAC equipment.
- Exception: Pipe insulation is not required for piping that conveys fluids having a design operating temperature range between 55 degrees F and 105 degrees F.
- Exception: Pipe insulation is not required for piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
- Exception: Pipe insulation is not required for runout piping not exceeding 4 ft in length and 1 in. in diameter between the control valve and HVAC coil.
13. Operation and maintenance documentation must be provided to the owner that includes at least the following information: a) equipment capacity (input and output) and required maintenance actions (b) equipment operation and maintenance manuals (c) HVAC system control maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions; desired or field-determined set points must be permanently recorded on control drawings, at control devices, or, for digital control systems, in programming comments (d) complete narrative of how each system is intended to operate.
14. Each supply air outlet or diffuser and each zone terminal device (such as VAV or mixing box) must have its own balancing device. Acceptable balancing devices include adjustable dampers located within the ductwork, terminal devices, and supply air diffusers.
15. Stair and elevator shaft vents must be equipped with motorized dampers capable of being automatically closed during normal building operation and interlocked to open as required by fire and smoke detection systems. All gravity outdoor air supply and exhaust hood vents, and ventilators must be equipped with motorized dampers that will automatically
shut when the spaces served are not in use.

Exceptions:
- Gravity (non-motorized) dampers are acceptable in buildings less than three stories in height above grade.
- Ventilation systems serving unconditioned spaces.
2003 INTERNATIONAL ENERGY CONSERVATION CODE
Field Inspection Checklist—Commercial Provisions

Generally, a department's administrative rules will list required periodic inspections. Because the majority of energy efficient construction occurs in steps, or phases, periodic inspections are often necessary before portions of these systems are covered. The exact number of required inspections cannot always be specified. A re-inspection may be necessary where violations are noted and corrections are required (see commentary, Section 105-4). If time permits, frequent inspections of some job sites, especially where the work is complex, can be beneficial to detect potential problems before they become difficult to correct.

FIELD INSPECTOR'S RESPONSIBILITIES. The inspector's task is to make sure that the project is constructed in accordance with the approved plans. Be aware that a number of requirements will vary from project to project. As a start, review the comments above for the applicant and building envelope plans examiner for a general sense of key requirements.

BUILDING THERMAL ENVELOPE.
(Foundation inspection)
- Verify that the perimeter slab insulation has the R-value shown on the drawings and that it covers the areas shown on the drawings. If the insulation is vertical, check to see that the insulation goes all the way to the top of the slab or is protected from sunlight and landscaping if installed on the exterior.
- Verify that the below-grade wall insulation has the R-value shown on the plans. If insulation is to be installed later on the exterior, verify that the correct R-value is installed before the wall is backfilled.
- Inform contractor of any missing items or corrections to be made.

(Framing inspection)
- Verify that problems noted at the foundation inspection have been addressed.
- Verify fenestration U-factor(s) and SHGC(s) as soon as products begin arriving on the construction site.
- Verify that windows, skylights, sliding glass doors, swinging glass doors, opaque swinging doors, and roll-up doors do not exceed infiltration rate specified.
- Verify that exterior joints, cracks, and holes are caulked, gasketed, weather-stripped, or otherwise sealed.
- Verify opaque door U-factors.

(For the insulation inspection)
- Verify that problems noted at the framing inspection have been addressed.
- Verify installation of a vapor retarder on the warm-in-winter side of the wall.
- Verify insulation R-value for roofs. Verify that insulation is in substantial contact with the surface being insulated to avoid air paths which bypass the insulation. If eave vents are installed, verify baffling of vent openings to deflect incoming air above the insulation.
- Verify that "air-tight," type IC (insulation contact) light fixtures are installed in attics, if shown on the plans.
- Verify insulation R-value for interior walls adjacent to unconditioned space.
- Verify insulation R-value for floors over outdoor air or unconditioned space.
- Verify that insulation is in substantial contact with the surface being insulated to
avoid air paths which bypass the insulation. For framed floors, this may mean installing supports to keep the insulation tight against the floor.

- Verify insulation R-value of below-grade walls (if not done previously).
- Verify that below-grade wall insulation is protected as it extends above grade.
- Verify installation of insulation. Confirm that insulation is not compressed by inset stapling of batt insulation or other means. Verify that insulation fills all cavities completely by cutting insulation around electrical outlets and switches, and by splicing insulation to fit behind and in front of electrical wiring. Confirm that band joists and other interstitial floor elements of the wall are insulated.
- Inform contractor of any missing items or corrections to be made.

(Final inspection)
- Verify that problems noted at the insulation inspection have been addressed.

**MECHANICAL.**
(Rough-in “okay-to-cover” inspection)
- Verify heating and cooling equipment efficiency.
- Verify heating and cooling equipment is optimally sized in accordance with the approved plans.
- Verify that each heating and cooling system has a temperature control device.
- Verify that automatic setback controls are installed.
- Verify that the heating and cooling supply to each zone is controlled by a thermostat located in that zone.
- Verify that heat pumps have controls to prevent electric resistance supplementary heater operation when the load can be met by the heat pump (i.e., the installation of a heat-pump thermostat).
- Verify that simultaneous heating and cooling does not exceed that allowed by the drawings. Expect to see VAV systems in most cases, with constant volume reheat limited to certain sections of hospitals and laboratories.
- Verify the presence of a variable frequency drive or other control type as indicated on drawings for VAV fan motors 25 hp and larger.
- Verify variable speed drive or other control type as indicated on drawings for hydronic (HVAC) pumping systems over 16 hp.
- Verify that outdoor air supply and exhaust systems have motorized or gravity dampers for automatic volume shutoff or reduction.
- Verify that zones with different operating hours (i.e. office vs. retail) are either served by separate systems or have isolation devices to shut off or set back each zone independently as indicated by the plans.
- Verify that each fan system of 3,000 cfm or greater and 90,000 Btu/h or greater is equipped with an air or water economizer unless exempted on the plans.
- Verify that ducts are constructed and sealed in with welds or a UL 181A or UL 181B tape or mastic closure system. Note that pressure sensitive tape (i.e., “duct tape”) cannot be used as a sealant on any ducts.
- Inform contractor of any missing items or corrections to be made.
(Final inspection)
- Verify piping insulation thicknesses and conductivity.
- Confirm the presence of duct insulation and verify the R-value.
- Verify that problems noted at the rough-in inspection have been addressed.

SERVICE WATER HEATING.
(Rough-in “okay to cover” inspection)
- Verify service water heating equipment efficiencies.
- Verify a heat trap for all non-circulating systems.
- Check that temperature controls are provided to allow storage temperature adjustment to a temperature compatible with the intended use.
- Inform contractor of any missing items or corrections to be made.

(Final inspection)
- Verify piping insulation thicknesses and conductivity (R-value).
- Verify that heated pools have a cover unless drawings allow an exemption.
- Verify that problems noted at the rough-in inspection have been addressed.

ELECTRICAL.
(Rough-in “okay-to-cover” inspection)
- Verify lamp and ballast types. It is important to confirm that the lamps and ballasts are the same as those listed on the drawings and schedules. (Tip: it may be advisable to look at lamps when they are coming out of the box so it won’t be necessary to climb a ladder and disassemble a fixture after it’s been installed in the ceiling.) Expect T-8 lamps (the skinny tubes, 1 inch (8/8ths) in diameter) rather than the old T-12 lamps (1-1/2 inches 12/8ths in diameter). Expect compact fluorescents in hallways rather than incandescents. Expect metal halide or high pressure sodium luminaires in parking garages, and in most high ceiling manufacturing and warehouse spaces.
- Verify that the number of fixtures and spacing is consistent with the construction documents for two to three select spaces.
- Confirm that internally illuminated exit signage does not exceed 5 watts per side.
- Verify number and type of interior lighting controls. Assume that there is to be a local control with two switches required in each space. Alternatively some type of automatic lighting control is generally required unless there is a bi-level switching (two switches) arrangement proposed.
- Verify the presence of automatic exterior lighting controls, usually located on the roof. Expect photocell or look for astronomical timer with scheduling capabilities and four-hour battery backup.
- Verify tandem wiring of one- and three-lamp magnetic ballasts (i.e., magnetic ballasts are heavy and thick versus electronic ballasts that are thin and light). Tandem wiring is not required for electronic ballasts
- Inform contractor of any missing items or corrections to be made.

(Final Inspection)
Check the following items during the final inspection:
Verify that problems or unresolved issues noted at the rough-in inspection have been addressed.

Verify that the contractor has provided the building owner with a schematic of the electrical systems.

Verify the presence of an automatic control for exterior lighting (typically pointing toward North and located on the roof). Expect a photocell or look for an astronomical timer with scheduling capabilities and four-hour battery backup.

Verify exempt exterior and interior exempt lighting fixtures, if applicable.

Verify lighting systems exempt from control requirements.

Verify installation of all required lighting controls.

Verify that all manual controls are readily accessible from the room in which the lighting is controlled.

Confirm the operation of automatic lighting controls, where used.
## APPENDIX D

### SCHOOL CONSTRUCTION INSPECTION DOCUMENTATION

<table>
<thead>
<tr>
<th>School Board/District</th>
<th>Building Owner</th>
<th>Design Professional</th>
<th>Building Permit Holder</th>
<th>Regional Superintendent or Designee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hires design professional, obtains building permit and certificate of occupancy.</td>
<td>If other than school board, consent affidavit must be filed.</td>
<td>Designs and oversees construction in accordance with applicable codes.</td>
<td>Notifies Regional Superintendent or designate when for when ready for each inspection.</td>
<td>Ensures that required inspections are conducted and documented.</td>
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</table>

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Gross SF</th>
<th>Construction Type</th>
<th>Occupancy Type</th>
<th>Est. Cost of Project</th>
<th>Est. Completion Date</th>
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### 2003 International Building Code INSPECTIONS

<table>
<thead>
<tr>
<th></th>
<th>BPH Ready Notification Date</th>
<th>Inspection Date</th>
<th>Inspector Name</th>
<th>Inspector Sign-Off and Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Footing and Foundation</td>
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<tr>
<td>2. Concrete Slab and Under-floor</td>
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<tr>
<td>3. Lowest Floor Elevation</td>
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<tr>
<td>4. Frame</td>
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<tr>
<td>5. Lathe and Gypsum Board</td>
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<td>6. Fire Resistant Penetrations</td>
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<tr>
<td>7. Energy Efficiency</td>
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<td>8. Final IBC</td>
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### 2003 International Energy Conservation Code INSPECTIONS

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<tr>
<td>1. Foundation.</td>
<td>THERMAL ENVELOPE</td>
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<td>2. Framing.</td>
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<td>3. Insulation.</td>
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<td>4. Rough-in &quot;Okay-to-Cover&quot;.</td>
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<td>5. Final.</td>
<td>MECHANICAL</td>
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<td>6. Rough-in &quot;Okay-to-Cover&quot;.</td>
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<td>10. Final IECC</td>
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### 2003 International Fire Code INSPECTIONS

Established by fire code official.

### 2003 International Fuel Gas Code INSPECTIONS

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<tbody>
<tr>
<td>1. Underground Piping</td>
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<td>2. Rough-in &quot;Okay-to-Cover&quot;</td>
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<td>3. Final</td>
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### 2004 Illinois Accessibility Code INSPECTIONS

Established by CDB.

### 2004 Illinois Plumbing Code INSPECTIONS

Established by IDPH.

### 2003 III. Boiler and Pressure Vessel Safety Code INSPECTIONS

Established by OSFM.

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Approval as a result of the inspections noted above shall not be construed to be an approval of a violation.