

APPENDIX C

CODES AND STANDARDS

A. **GENERAL REQUIREMENTS**

1. The Project Architect/Engineer shall design UT System construction projects to comply with the current Office of Facilities Planning and Construction (OFPC) approved editions of the following codes and standards and advise the Owner of code revisions having impact on the project design.

2. The State Fire Marshal is the code authority having jurisdiction (AHJ) for all issues pertaining to NFPA 101 Life Safety Codes and NFPA 1 Fire Code.

For all UT System Capital Improvement Program (CIP) design and construction projects directly managed by OFPC and for all building-related codes other than NFPA 101 Life Safety Codes and NFPA 1, the UT System Office of Facilities Planning and Construction (OFPC) is the authority having jurisdiction (AHJ) and/or the responsible party for coordination with other governing agencies having jurisdiction. When conflicts arise, OFPC will facilitate resolution and confirm interpretations after a thorough and joint review with the institution(s).

Refer to the OFPC Risk Mitigation & Monitoring Plan for confirmation of additional authorities having jurisdiction and for additional clarification on state and federal regulatory requirements.

3. The Project Architect/Engineer shall prepare a written codes and standards analysis, "Building Code Analysis," for each project for review by OFPC. This analysis shall provide a side-by-side comparison of the requirements of the below listed codes and standards for each code issue and an indication of which code requirement is being applied to the project (see sample analysis Exhibit 2). In the absence of a careful and thorough discussion by the design team of a specific conflict between the codes, the default is to design to the more restrictive or more protective code. These code discussions are project-specific and on a point-by-point basis within the codes. The final approved Building Code Analysis shall be placed in the project construction document drawings for future reference by the Owner. See Appendix L for submittal requirements.
4. If deemed necessary for local authority to review any aspect of the project, such review shall be arranged to allow an OFPC or institutional representative to attend with the Project Architect/Engineer.
5. In the event of the need for interpretation among the codes and standards, the Project Architect/Engineer shall inform OFPC of the need for an interpretation and OFPC will establish the requirements for compliance.
6. OFPC also requires the Project Architect/Engineer to comply with certain provisions of the local fire department that provides fire protection services for

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the institution. These provisions may include locations and dimensions for fire fighting access, including fire lanes; locations and specifications for stand pipes, fire hose cabinets, fire control room, and fire hose connections; elevator requirements; and other similar matters.

7. The Project Architect/Engineer shall be required to provide an affirmation statement that the project is designed in compliance with applicable codes and standards. The following statement shall be located on the drawing index page or adjacent the project building code summary:

“Life Safety Code Compliance: The Project Architect/Engineer acknowledges that construction projects for the University of Texas System must, at a minimum, be designed in accordance with the requirements of National Fire Protection Association (NFPA) 101 Life Safety Code and NFPA 1 Fire Code as currently adopted by the State Fire Marshal, Texas Government Code sec. 417.008(e). Therefore, the Project Architect/Engineer affirms that, to the best of his/her professional judgment, knowledge, and belief, the design of this project satisfies the requirements of NFPA 101 Life Safety Code and NFPA 1 Fire Code as well as any other codes or standards made applicable to the project by the professional services agreement.”

B. DESIGN BASIS

1. National Fire Protection Association National Fire Code NFPA 101 - 2015 Edition Life Safety Codes (LSC), including the indicated edition date of all referenced standards (effective May 1, 2016)
2. National Fire Protection Association National Fire Code NFPA 1 Fire Code – 2015 Edition including the indicated edition date of all referenced standards (effective February 1, 2017); **see Exhibit 1 for additional details and exceptions to NFPA 1**
3. International Building Code 2015 Edition (effective May 1, 2016)

C. ARCHITECTURAL DESIGN

1. NFPA 45 Edition Standard on Fire Protection for Laboratories Using Chemicals as applicable
2. Texas Department of Licensing and Regulation (TDLR)
 - a. Elimination of Architectural Barriers Texas Government Code Chapter 469, Texas Administrative Code 16 TAC part 4 chapter 68 and Texas Accessibility Standards (TAS)

NOTE: If commencement of construction begins on or after March 15, 2012, then new construction or alterations shall comply with the 2012 TAS.

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- b. Elevators and Escalators, Health & Safety Code chapter 754 and 16TAC § 74 (see 16TAC § 74.100 for effective dates of ASME standards) (see 754.014(k) for date of installation definition)
 - c. Boilers, Health & Safety Code chapter 755 and 16TAC § 65
- 3. Americans with Disabilities Act, 28 CFR Part 35 Nondiscrimination on the Basis of Disability in State and Local Government Services, Final Rule, as published in the Federal Register Friday, July 26, 1991
 - a. **NOTE: If physical construction or alterations commence on or after September 15, 2010 and before March 15, 2012, then new construction and alterations may comply with one of the following: the 2010 ADA Standards, or the 1991 ADA Standard. Physical construction or alterations commence when the General Construction agreement is signed.**
 - b. **If physical construction or alterations commence on or after March 15, 2012, then new construction and alterations shall comply with the 2010 ADA Standards**

D. CIVIL/STRUCTURAL DESIGN

- 1. ACI – 318 current edition, Building Code Requirements for Structural Concrete
- 2. AISC current edition, for Steel Construction Manual
- 3. Texas Department of Insurance Windstorm Inspection Program
- 4. FEMA 100-year flood plain
- 5. OFPC Guideline Specifications for Division 7

E. MECHANICAL & PLUMBING DESIGN

- 1. International Mechanical Code 2015 Edition
- 2. International Plumbing Code 2015 Edition
- 3. International Fuel Gas Code 2015 Edition
- 4. OFPC Guideline Specifications for Divisions 11, 21, 22 and 23

F. ELECTRICAL DESIGN

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Based upon the February 2017 Memorandum of Understanding (MOU) between the State Fire Marshal's Office (SFMO), Texas Department of Licensing and Regulation (TDLR), and U.T. System (UTS), the effective date of compliance with the latest adopted edition of NFPA 70 National Electrical Code (NEC) was established such that every three (3) years in September when the latest NEC is published and released by NFPA, TDLR announces on its website that the new version of the NEC will become effective in one year. The SFMO will allow the use of, and UTS will require compliance with, the latest edition of the NEC as adopted by the TDLR based upon the start of electrical work. Currently, the following effective dates are in effect:

1. National Electrical Code 2014 Edition for electrical construction beginning before September 1, 2017.
2. National Electrical Code 2017 Edition for electrical construction beginning on or after September 1, 2017.
3. Ongoing adoption will occur on a three-year cycle as indicated above.

NOTE: TDLR defines the start of electrical work as the day an electrician begins installing electrical materials or equipment within the building structure. Start of work includes the installation of temporary power for construction.

3. OFPC Guideline Specifications for Divisions 26, 28 and 33

G. ENERGY & WATER CONSERVATION DESIGN

1. Energy Conservation Design Standard for New State Buildings (including major renovation projects), current edition, State Comptroller's Office, Government Code sec. 447.004 and 34 TAC § 19.32
2. ASHRAE / IESNA 90.1 2013 Edition (effective June 1, 2016) or International Energy Conservation Code (IECC) 2015 Edition (effective June 1, 2016)
3. SECO's Water Conservation Design Standards for State Buildings and Institutions of Higher Education Facilities dated April 2016 (effective June 1, 2016)

H. CODE COMPLIANCE CONFIRMATION REVIEWS

1. An independent project design "Code Compliance Confirmation Review" will be performed, documented and submitted to the Owner at DD and 75% CD submission to ensure compliance with the following codes as they apply to a specific project. The Owner's Project Manager will direct the A/E to obtain this code confirmation review or will direct the Owner's Code Consultant to perform this code confirmation review. (non-inclusive code review list, editions as listed in sections above):

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- International Building Code (IBC)
 - International Fuel Gas Code (IFGC)
 - International Mechanical Code (IMC)
 - International Plumbing Code (IPC)
 - National Electrical Code (NEC) NFPA 70
 - NFPA 101 Life Safety Code
 - NFPA 1 Fire Code
 - NFPA Codes as applicable, with emphasis on the following:
 - NFPA 101 Referenced Required Codes
 - NFPA 1 Referenced Required Codes
 - NFPA 12A
 - NFPA 20
 - NFPA 22
 - NFPA 54 As adopted by TX Railroad Commission
 - NFPA 58 As adopted by TX Railroad Commission
 - NFPA 92A
 - NFPA 92B
 - NFPA 203
 - NFPA 204
 - NFPA 2001
 - FEMA 100-year flood plain verification
 - Texas Department of Insurance (TDI) First Tier Coastal Counties wind load criteria
2. This Code Compliance Confirmation Review does not relieve the A/E firm from complying with the approved codes and standards for the project. See Exhibit 3 for sample code review template.

I. ACOUSTICAL DESIGN - BACKGROUND NOISE DESIGN CRITERIA FOR TYPICAL OCCUPANCIES

1. Design in accordance with good practice to achieve conventional ambient noise levels qualified in Noise Criteria (NC) defined in current ASHRAE Applications Volume, Chapter 42 and ANSI S1.8 Reference Quantities for Acoustical Levels – ASA 84.
2. The ambient sound level of an occupied space is not to exceed the following NC listed for its respective typical occupancy unless specifically directed otherwise by the involved institution's statement of project program requirements. Spatial forms, materials, assemblies, systems and equipment selections are to be designed as required to achieve a standard quality of specified level of maximum background noise.

a. Typical Occupancy

Max. Noise Criteria
NC

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(1)	Apartments/Dorms:	
	(a) Individual rooms/suites	35
	(b) Meeting/banquet rooms	35
	(c) Halls, corridors, lobbies	40
	(d) Service/support areas	45
(2)	Offices:	
	(a) Executive	30
	(b) Conference rooms	30
	(c) Private	35
	(d) Open-plan areas	40
	(e) Computer/Business machine areas	45
	(f) Public circulation	45
(3)	Research, Hospital, and Clinics:	
	(a) Private rooms	30
	(b) Wards	35
	(c) Operating rooms	25
	(d) Laboratories:	
	Research & General	35
	Teaching	30
	At Hoods: 4' AFF, 3' in front 0-50% sash position	55
	(e) Corridors	35
	(f) Public areas	40
(4)	Schools:	
	(a) Lecture and classrooms	30
	(b) Open-plan classrooms	35
	(c) Lecture theaters	30
(5)	Libraries	35
(6)	Performing Arts:	
	(a) Theater	25
	(b) Stagehouse	25
	(c) Trap room	25
	(d) Orchestra pit	25
	(e) Rehearsal rooms	25
	(f) Teaching studios	30
	(g) Practice rooms	30
	(h) Ensemble rooms	30
	(i) Shop	45
(7)	Recording studios:	
	(a) Recording room	20
	(b) Sound control room	25

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(c) Other control rooms

25

3. These conventional standards of the level of ambient noise in a space are independent of and prior to the installation of any Owner-furnished equipment, furniture and furnishings unless specified otherwise. Other resource material describing conventional ambient noise criteria is available in the current edition of Ramsey/Sleeper Architectural Graphic Standards.

EXHIBIT 1

Excerpts from:

4015

Title 28. Insurance Adopted Section

Part 1. Texas Department of Insurance

Chapter 34. State Fire Marshal

SUBCHAPTER C. STANDARDS AND FEES FOR STATE FIRE MARSHAL INSPECTIONS 28 TAC §34.303

Beginning with page 7 of 12 - **4015...**

With respect to rehabilitation or remodeling, the State Fire Marshal can assist property owners and operators with finding reasonable equivalencies, alternatives, and modifications to achieve rehabilitation and meet the requirements and intent of the adopted code. Where there are practical difficulties that prevent the university's facilities management from carrying out the provisions of the NFPA 1 Fire Code during rehabilitation or remodeling, the state fire marshal can provide information to allow for flexibility while still providing reasonable protections. The state fire marshal is committed to working closely with staff at the state's universities to ensure safe conditions by applying adopted standards in a reasonable manner.

With respect to other occupancies, the State Fire Marshal intends to interpret provisions of the NFPA 1 Fire Code as adopted, while also allowing for equivalencies, alternatives, and modifications as necessary.

Business Occupancies – New and existing business occupancies, which constitute the majority of university academic buildings, must comply with NFPA 1 Fire Code, Chapter 20.13 and NFPA 101 Life Safety Code. NFPA 101 Life Safety Code, Chapter 38/39.3.2.1 refers to 8.7 and NFPA 45, Standard on Laboratories Using Chemicals.

Health Care Occupancies – New and existing health care occupancies must comply with NFPA 1 Fire Code, Chapter 20.4.1; NFPA 101 Life Safety Code; and NFPA 99, Health Care Facilities Code. NFPA 101 Life Safety Code, Chapter 18/19.3.2.2 refers to the NFPA 99, Health Care Facilities Code.

Chapter 16, Safeguarding Construction, Alteration and Demolition – NFPA 101 Life Safety Code, Chapter 4.6.10 provides for equivalent safeguards in comparison to the NFPA 1 Fire Code for buildings undergoing construction and alterations.

Chapter 18, Fire Department Access and Water Supply – The intent is for

universities to reach out to local fire officials and work together to determine any particular requirements for fire department access and water supply, and that they find mutual solutions to resolve any specific issues.

Chapter 21, Airports and Heliports – Refers compliance to the NFPA 101 Life Safety Code and applicable sections of Chapter 40 and Chapter 42.

Chapter 23, Cleanrooms – Refers compliance to NFPA 318 Standard for the Protection of Semiconductor Fabrication Facilities with exceptions.

Chapter 25, Grandstands, Bleachers, Tents and Membrane Structures – Refers compliance to the NFPA 101 Life Safety Code. Specific provisions are referenced in Chapter 11, Chapter 12 and Chapter 13.

Chapter 28, Marinas, Boatyards, Marine Terminals, Piers, Wharves – Compliance prescribed per occupancy chapter, NFPA 101 Life Safety Code. Chapter 11 has provisions related to piers.

Chapter 29, Parking Garages – Refers compliance to NFPA 101 Life Safety Code, Section 42.8 and NFPA 88-A Standard for Parking Structures.

Chapter 30, Motor Fuel Dispensing Facilities and Repair Garages – Compliance is within scope of the NFPA 30 Flammable and Combustible Liquids Code and NFPA 30-A Code for Motor Fuel Dispensing Facilities and Repair Garages as adopted by State Fire Marshal rules under Health and Safety Code Chapter 753.

Chapter 32, Motion Picture and Television Production Studios, Soundstages, and Approved Production Facilities – Compliance prescribed per occupancy chapter and reference to the NFPA 140 Standard On Motion Picture And Television Production Studio Soundstages, Approved Production Facilities, and Production Locations as applicable.

Chapter 34, General Storage – Compliance prescribed per occupancy chapter. Typical university storage occupancies do not contain the type of commodities referenced in this chapter and in most cases already meet compliance with NFPA 101 Life Safety Code, Chapter 42.

Chapter 35, Animal Housing Facilities – Compliance is prescribed per reference to the NFPA 150 Standard on Fire and Life Safety in Animal Housing Facilities as applicable for existing buildings.

NFPA 150 Standard on Fire and Life Safety in Animal Housing Facilities, Chapter 1.3.3 – This standard also applies to existing facilities in which any one of the following conditions exists: (1) a change of use or occupancy classification occurs where animals are introduced; (2) a change is made in the sub-classification or category of the animals housed; (3) a renovation, modification, reconstruction, or addition is made; (4) a building

or structure with an animal housing facility is relocated; (5) a building with an animal housing facility is considered damaged, unsafe, or a fire hazard; (6) a property line that affects compliance with any provision of this standard is created or relocated.

NFPA 150 Standard on Fire and Life Safety in Animal Housing Facilities, Chapter 1.4.1 – Unless otherwise specified, the provisions of this standard do not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard. Where specified, the provisions of this standard are retroactive.

Chapter 36, Telecommunication Facilities and Information Technology Equipment – Compliance prescribed per occupancy chapter and reference to the NFPA 75 Standard for the Fire Protection of Information Technology Equipment as applicable.

The State Fire Marshal recognizes that cases may arise that can present unusual or extraordinary circumstances and challenges for compliance with certain provisions of the code. In these cases, it is the intent the state fire marshal to determine an acceptable solution that offers a reasonable but equivalent method of compliance for the particular condition

§34.303. Adopted Standards.

(a) The commissioner adopts by reference:

(1) NFPA 1-2015 Fire Code, except for

(A) Chapter 1 Administration, to the extent that subsections 1.6 Enforcement, 1.7 Authority, 1.8 Duties and Powers of the Incident Commander, 1.9 Liability, 1.10 Fire Code Board of Appeals, 1.11 Records and Reports, 1.12 Permits and Approvals, 1.13 Certificates of Fitness, 1.14 Plan Review, and 1.16 Notice of Violations and Penalties do not apply to State Fire Marshal inspections;

(B) Chapter 30 Motor Fuel Dispensing Facilities and Repair Garages, to the extent it conflicts with standards adopted in Subchapter A of this chapter and Health and Safety Code Chapter 753;

(C) Chapter 60 Hazardous Materials, to the extent it will not be applied to laboratories and laboratories in health care occupancies; and

(D) Chapter 65 Explosives, Fireworks, and Model Rocketry, to the extent it conflicts with subchapter H of this chapter and Occupations Code Chapter 2154;

(2) NFPA Life Safety Code 101-2015;

(b) These copyrighted standards and recommendations are adopted for inspections performed under Government Code §417.008, except to the extent they are in conflict with sections of this chapter or any Texas statutes or federal law. The standards are published by and are available from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269. A copy of the standards is available for public inspection in the State Fire Marshal's Office.

EXHIBIT 2
BUILDING CODE ANALYSIS [TEMPLATE]

Project Name:
Institution:
Project No.

Code/Standards Analysis
Date:
Project Phase:

Applicable Codes

1. NFPA 101 Life Safety – 2015 Edition
2. NFPA 1 Fire Code – 2015 Edition
3. International Building Code – 2015 Edition
4. Texas Accessibility Standard – 2012 Edition
5. etc.

Note: The code requirements selected as the basis for design are bolded.

<u>Code Issue</u>	<u>NFPA 101</u>	<u>IBC</u>
Occupancy Classification		
1. Offices and college classrooms With less than 50 occupants	Business 6.1.2.2	Group B 304.
Construction Classification		
1. Main Building	Not addressed	Type IIA 403.3.1
Stair Pressurization	Not Required	1005.3.2.5
Distance between exits	250 ft. if sprinkled	250 ft. if sprinkled
Etc.		

EXHIBIT 3

CODE COMPLIANCE CONFIRMATION REVIEW [TEMPLATE]

[Date]

[Project Manager]

The University of Texas System
Office of Facilities Planning and Construction
210 W. 6th St.
Room B.140E
Austin, TX 78701

Reference: Review Comments on [100%DD or 75% CD]
[Project name]
[Institution]
OFPC Project No. XXX-XXX

Dear [Project Manager]:

[Code Consulting Firm (CCF)] has complete its Code Compliance Confirmation review and has prepared review comments on the documents for the [DD or 75% Construction Documents] package for the referenced project.

In performing this current service, [CCF] reviewed the following documents, furnished by A/E.

- DD or 75% Construction Documents Drawings dated [month dd, yyyy].
- DD or 75% Construction Documents Project Manual, Architectural Volume I Divisions 1-14, dated [month dd, yyyy].
- DD or 75% Construction Documents Project Manual, M.E.P. Volume II Divisions 21 - 33, dated [month dd, yyyy].

The principal codes used in this review are as follows:

- International Building Code, 2015 Edition (IBC)
- NFPA 101, *Life Safety Code*, 2015 Edition (LSC)
- NFPA 1, *Fire Code*, 2015 Edition

Other applicable codes, standards, and regulations are listed in the Project Data shown on the Building Code Analysis Drawing 1.1 and in the Project Information Manual. Additionally, FEMA 100-year flood plain verification and TDI First Tier Coastal County wind load criteria were reviewed where applicable.

Description of Project

The [Project] consists of ...

Note: The follow major headings in this Code Compliance Confirmation Review Template are for reference only to demonstrate process.

Building Code Issues

Comments:

[Drawing 5.1, Drawing 10.21, Drawing 11.41 indicates there are accessible dwelling units. There is no table that indicates the discrete Apartment ID and Building ID for each accessible dwelling unit so that a user of the plans can see in one place the summary of accessible units.]

Requirements for Hazardous Materials and Laboratories

Insert comments as necessary.

Means of Exit Access

Insert comments as necessary.

Emergency and Standby Power

Insert comments as necessary.

Fire Water Supply

Insert comments as necessary.

FEMA 100-year Flood Plain

Insert comments as necessary.

TDI Windstorm Inspection Program

Insert comments as necessary.

Other Major Code Headings as Necessary

Insert comments as necessary.

Summary

Compliance with the comments stated in this letter does not relieve the A/E from complying with the Owners Design Guidelines, Owner's insurance/underwriting requirements, applicable NFPA Standards and State requirements.

Sincerely,

Project Manager

Texas License No. xxxxxx

cc: UT System Office of Risk Management
OFPC Director of Strategic Design and Initiatives
OFPC Staff Engineering Manager

Revision Log
Appendix C

Rev. Date	Remarks
3/1/06	Adopt use of Master Format for specs. (change Div 15 & 16 to Div 1-33)
10/1/06	Adopt 2006 NFPA 101 LSC and 2006 IBC
1/1/09	Add Revision Log
	Adopt ASHRAE 90.1 – 2007 edition effective 1/1/09 per SECO
	Add effective date language to TDLR Elevator requirements
	Add language to use current edition of ACI 318 & AISC
10/12/09	Adopt 2009 NFPA 101 LSC and 2009 IBC effective 10-15-09
10/1/10	Changed more stringent to more restrictive or more protective, added 2010 ADA Standard effective date
3/1/11	Updated International Energy Conservation Code Edition to 2009 effective 4/1/11
9/1/11	Adopt International Energy Conservation Code 2009 Edition effective 6/1/11, adopt ASHRAE 90.1 – 2010 edition effective 9-1-11, adopt Water Efficiency Standard for State Buildings and Institutions of Higher Edu. effective 9/1/11
3/1/12	Adopt 2012 TAS effective 3/15/12
11/1/12	Adopt 2012 NFPA 101 LSC and 2012 IBC effective 10-19-12
7/13/15	Adopt 2012 NFPA 1 Fire Code effective 7-6-15
6/3/16	Adopt 2015 NFPA 101 LSC and 2015 IBC, IMC, IPC, IFGC, IECC effective 5-1-16 Adopt ASHRAE 90.1 – 2013 edition and Water Conservation Design Standard effective 6-1-16
8/4/16	Add Adopt 2015 IBC effective 5-1-16 omitted from text B3 on 6/3/16
7/20/17	Adopt 2015 NFPA 1 Fire Code effective 2-1-17
7/20/17	Adopt 2017 NEC effective 9.1.17 and SFMO/TDLR 3-yr NEC update process
7/20/17	Clarify addition of IECC 2015 for energy code compliance
4/17/18	Clarify OFPC's AHJ role for OFPC projects
6/13/18	Clarify that TX Railroad Commission has amended NFPA 54 & 58