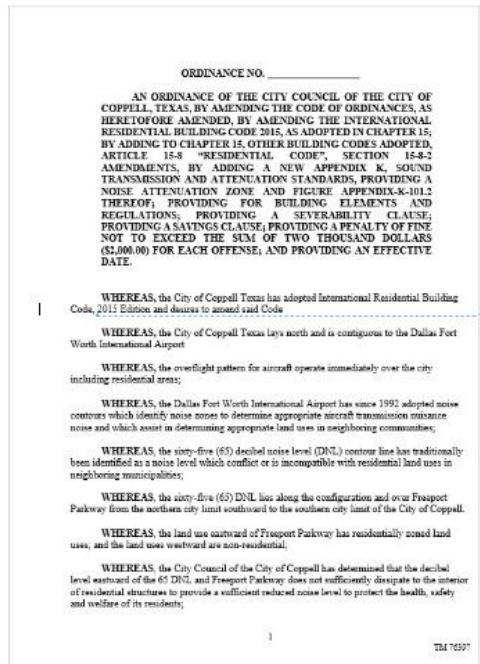


SOUND TRANSMISSION AND ATTENUATION STANDARDS

APPENDIX K, 2015 INTERNATIONAL RESIDENTIAL CODE



Because of Coppel's close proximity to the Dallas Fort Worth Airport, airplane noise could be considered as a nuisance to residents living nearby. In order to attenuate aircraft noise to a higher level than standard construction techniques (20 dB), a 25 dB noise level reduction is achieved with these standards for residential development within a noise attenuation zone measured from Freeport Parkway right-of-way to 2,000 feet east. Prescriptive standards include minimum STC & OITC ratings for exterior walls, roofs & ceilings, windows and exterior doors and minimum requirements for ventilation and penetration points for all new residential construction within the noise attenuation zone.

HIGHLIGHTS OF PROPOSED ORDINANCE:

- Proposed ordinance has been reviewed by HMMH Acoustical Consultants
- Their changes included the Outdoor-Indoor Transmission Class (OITC) requirements to be included, the adjustment to the minimum exterior door rating to STC 27 and specifically forbidding the use of through-wall fans and air conditioning units

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COPPELL, TEXAS, BY AMENDING THE CODE OF ORDINANCES, AS HERETOFORE AMENDED, BY AMENDING THE INTERNATIONAL RESIDENTIAL BUILDING CODE 2015, AS ADOPTED IN CHAPTER 15; BY ADDING TO CHAPTER 15, OTHER BUILDING CODES ADOPTED, ARTICLE 15-8 "RESIDENTIAL CODE", SECTION 15-8-2 AMENDMENTS, BY ADDING A NEW APPENDIX K, SOUND TRANSMISSION AND ATTENUATION STANDARDS, PROVIDING A NOISE ATTENUATION ZONE AND FIGURE APPENDIX-K-101.2 THEREOF; PROVIDING FOR BUILDING ELEMENTS AND REGULATIONS; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A SAVINGS CLAUSE; PROVIDING A PENALTY OF FINE NOT TO EXCEED THE SUM OF TWO THOUSAND DOLLARS (\$2,000.00) FOR EACH OFFENSE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Coppel Texas has adopted International Residential Building Code, 2015 Edition and desires to amend said Code

WHEREAS, the City of Coppel Texas lays north and is contiguous to the Dallas Fort Worth International Airport

WHEREAS, the overflight pattern for aircraft operate immediately over the city including residential areas;

WHEREAS, the Dallas Fort Worth International Airport has since 1992 adopted noise contours which identify noise zones to determine appropriate aircraft transmission nuisance noise and which assist in determining appropriate land uses in neighboring communities;

WHEREAS, the sixty-five (65) decibel noise level (DNL) contour line has traditionally been identified as a noise level which conflict or is incompatible with residential land uses in neighboring municipalities;

WHEREAS, the sixty-five (65) DNL lies along the configuration and over Freeport Parkway from the northern city limit southward to the southern city limit of the City of Coppell.

WHEREAS, the land use eastward of Freeport Parkway has residentially zoned land uses; and the land uses westward are non-residential;

WHEREAS, the City Council of the City of Coppell has determined that the decibel level eastward of the 65 DNL and Freeport Parkway does not sufficiently dissipate to the interior of residential structures to provide a sufficient reduced noise level to protect the health, safety and welfare of its residents;

WHEREAS, the building material and techniques exist, as set forth in Appendix K, would provide a significant noise attenuation for new construction and provide an improvement to the quality of life to the persons residing within two thousand feet eastward of the centerline of Freeport Parkway and the 65 DNL established by the Dallas Fort Worth International airport;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF COPPELL, TEXAS

SECTION 1. That the *Code Ordinance* of the City of Coppell, Texas, as heretofore amended, be, and the same is hereby amended by amending the Code of Ordinances, Chapter 15, other Building Codes, Article 15 Residential Code, Section 15-8-2 Amending by adding a new subsection 50, Appendix K, which shall read as follows:

“CHAPTER 15

OTHER CODES ADOPTED

.....

ARTICLE 15-8. RESIDENTIAL CODE

.....

Sec. 15-8-2. Amendments

The following sections of the International Residential Code, 2015 Edition, are hereby amended to read as follows:

.....

50. *Appendix K: Appendix K Sound Transmission and Attenuation Standards (as set forth Exhibit 1, attached hereto and incorporated herein by reference) is hereby adopted as part of this code."*

SECTION 2. That all provisions of the Code of Ordinance of the City of Coppel, Texas, in conflict with the provisions of this ordinance be, and the same are hereby, repealed, and all other provisions not in conflict with the provisions of this ordinance shall remain in full force and effect.

SECTION 3. That should any word, sentence, paragraph, subdivision, clause, phrase or section of this ordinance, or of the Code of Ordinances, as amended hereby, be adjudged or held to be void or unconstitutional, illegal, or invalid, the same shall not affect the validity of the remaining portions of said ordinance or the Code of Ordinances, as amended hereby, which shall remain in full force and effect.

SECTION 4. That an offense committed before the effective date of this ordinance is governed by prior law and the provisions of the Code of Ordinance, as amended, in effect when the offense was committed and the former law is continued in effect for this purpose.

SECTION 5. That any person, firm, or corporation violating any of the provisions or terms of this ordinance shall be subject to the same penalty as provided for in the Code of Ordinances of the City of Coppel, as heretofore amended, and upon conviction shall be punished by a fine not to exceed the sum of Two Thousand Dollars (\$2,000.00) for each offense; and each and every day such violation shall continue shall be deemed to constitute a separate offense.

SECTION 6. That this ordinance shall take effect immediately from and after its passage and the publication of its caption, as the law and charter in such cases provide.

DULY PASSED by the City Council of the City of Coppel, Texas, this the _____ day of _____, 2017

APPROVED:

KAREN SELBO HUNT, MAYOR

ATTEST:

CHRISTEL PETTINOS, CITY SECRETARY

APPROVED AS TO FORM:

ROBERT E. HAGER, CITY ATTORNEY

(REH/mpm)

ORDINANCE NO. _____

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APPROVED:

KAREN SELBO HUNT, MAYOR

ATTEST:

CHRISTEL PETTINOS, CITY SECRETARY

SOUND TRANSMISSION AND ATTENUATION STANDARDS – PROPOSED ORDINANCE

APPROVED AS TO FORM:

ROBERT E. HAGER, CITY ATTORNEY

(REH/mpm)

Appendix K

Sound Transmission

AIRCRAFT NOISE ATTENUATION REQUIREMENTS

AK101.1 Zone. For the purposes of this code, a noise attenuation area is established, which is a two thousand feet (2,000') measured eastward from the centerline of the Freeport Parkway from its intersection within the northern city limits southward to the southern city limit.

AK101.2 Map. This noise zone shall include such territory or portion of the city as designated and depicted on the noise attenuation zone map (Fig. App K-101.2, a copy of which is on file with the Building Official) and incorporated into this code and made a part of it for all intents and purposes.

AK101.3 Definitions.

Sound Transmission Class (STC) is calculated over the frequency range of 125 to 4,000 Hz and provides a single number rating for determining airborne sound transmission loss of exterior building facades, interior room partitions and other construction elements (such as windows and doors) which are subjected to noise from speech, television, radio, office equipment and other mid to high frequency noise sources. The STC rating is determined in accordance with ASTM E413.

Outdoor-indoor transmission class (OITC) is calculated over the frequency range of 80 to 4,000 Hz and provides a single number rating for determining airborne sound transmission loss of exterior building facades and exterior façade elements (window and doors) which are subject to transportation noise (aircraft, trains, automobiles, and other low to mid frequency noise sources). The OITC rating is determined in accordance with ASTM E1332.

AK102.1 Certified plans. The building official shall not issue a building permit for any residential building structure for human occupancy or part thereof within the attenuation zone as

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defined herein unless the plans and specifications accompanying the application for the permit comply with the requirements set forth in this Appendix or the plans are certified by a bona fide acoustical noise consultant to achieve the noise reduction in section AK103.1 of this Appendix.

AK102.2 Noise consultants. Bona fide acoustical noise consultants include members of the National Council of Acoustical Consultants and others who are approved by the building official, such approval being based on the demonstration of competence and credentials in the area of architectural acoustics.

AK102.3 Building intrusion in a noise zone. A residential structure which is located partly within the noise attenuation zone and partly outside shall be considered within the most restrictive of the noise zones within which it is located for purposes of this Appendix.

AK103.1 Noise reductions standards. Plans for the construction of buildings within noise attenuation zone shall be certified as achieving at least the outdoor to indoor noise level reductions (NLR) as measured in decibels within the building as follows:

<u>Building Use</u>	2,000 foot zone from the 65 DNL Noise Zone/Freeport Parkway
Residential:	25 NLR

AK104.1 Noise Level Reduction – 25 Decibels

Compliance.

Compliance AK104.1 through AK104.8 shall be deemed to meet requirements for a minimum noise level reduction (NLR) of 25 decibels.

AK104.2 Air leakage for all buildings.

- (1) The requirements of this Appendix shall apply to the design of the exterior envelope of all buildings in the designated attenuation zone designed for human occupancy. The requirements of this section are not applicable to the separation of interior spaces from each other.

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(2) The following locations shall be sealed, caulked, gasketed or weatherstripped to limit or eliminate air infiltration:

- (a) Exterior joints around windows and door frames between the window or door frame and the framing;
- (b) Openings between walls and foundations;
- (c) Between the wall sole plate and the rough flooring;
- (d) Openings at penetrations of utility services through walls, floor, and roofs;
- (e) Between wall panels at corners;
- (f) All other such openings in the building envelope.

(3) Through the wall, floor, or roof/ceiling penetrations not specifically addressed in these sections shall be designed to limit sound transmission and shall have the same average laboratory sound transmission classification as required for doors.

AK104.3 Exterior walls.

(1) Exterior walls, other than as described in this section, shall have an average laboratory sound transmission class rating of at least STC-37 and minimum OITC 30; or

(2) Minimum OITC 30;

(3) Masonry walls having a weight of at least 25 pounds per square foot do not require a furred (stud) interior wall. At least one surface of concrete block walls shall be plastered;

(4) Stud walls shall be at least four inches in nominal depth and shall be finished on the outside with solid sheathing under an approved exterior wall finish.

(a) The interior surface of the exterior walls shall be of gypsum board or plaster at least one-half inch thick, installed on the studs.

(b) Continuous composition board, plywood or gypsum board sheathing at least one-half inch thick or equivalent shall cover the exterior side of the wall studs.

(c) Sheathing panels shall be covered on the exterior with overlapping building paper.

(d) Insulation material at least R-13 shall be installed continuously throughout the cavity space behind the exterior sheathing and between wall studs. Insulation shall be glass fiber, mineral wool, or foam plastic insulation.

AK104.4 Exterior windows.

(1) Windows other than as described in this section shall have a laboratory sound transmission class rating of at least STC-33 and minimum OITC 25; or

(2) Windows shall have a minimum OITC 25.

(3) Windows shall be double-glazed with one pane at least three-sixteenths of an inch thick. Panes of glass shall be separated by a minimum of one-half inch airspace.

(4) All operable windows shall be weatherstripped and airtight when closed so as to conform to an air infiltration test not to exceed 0.5 cubic foot per minute per foot of crack length in accordance with ASTM E-283-65-T.

(5) Glass shall be sealed in an airtight manner with a nonhardening sealant or a soft elastomer gasket or gasket tape.

(6) The perimeter of window frames shall be sealed airtight to the exterior wall construction with a sealant conforming to one of the following Federal Specifications: TT-S-00227, TT-S-0230 or TT-SS-00153.

AK104.5 Exterior doors.

(1) Doors other than as described in this section shall have a laboratory sound transmission class rating of at least STC-27 and minimum OITC 25; or

(2) Exterior doors shall be minimum OITC 25.

(3) All exterior side-hinged doors shall be solid-core wood or insulated hollow metal at least one-and-three-quarters inch thick and shall be fully weatherstripped.

(4) Exterior sliding doors shall be weatherstripped with an efficient airtight gasket system with performance as specified in AK104.4 (3). The glass in the sliding doors shall be double glazed with panes at least three-sixteenths of an inch thick.

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(5) Glass, over two square feet in area, in doors shall be sealed in an airtight sealant or in a soft elastomer gasket or glazing tape.

(6) The perimeter of door frames shall be sealed airtight to the exterior wall construction as described in AK104.4(5).

AK104.6 Roofs.

(1) Combined roof and ceiling construction other than described in this section and AK104.7 shall have an average laboratory sound transmission class rating of at least STC-43 and minimum OITC 35; or

(2) With an attic or rafter space at least 12 inches deep, and with a ceiling below, the roof shall consist of one-half inch composition board, plywood or gypsum board sheathing topped by roofing as required;

(3) Open-beam roof construction shall follow the energy insulation standard method for batt insulation;

(4) Window or dome skylights shall have a laboratory sound transmission class rating of at least STC-33 and minimum OITC 25;

(5) Roof shall have a minimum OITC 35.

AK104.7 Ceilings.

(1) Gypsum board or plaster ceilings shall be five-eighths of an inch thick. Ceilings shall be substantially airtight with a minimum of penetration.

(2) Glass fiber, mineral wool, or foam plastic insulation at least R-30 shall be provided above the ceiling between joists.

(3) Minimum OITC 35.

AK104.8 Ventilation.

(1) A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any

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windows, doors or other openings to the exterior. The inlet and discharge openings shall be fitted with sheet-metal transfer ducts of at least 20 gauge steel, which shall be lined with one-inch-thick coated glass fiber, and shall be at least five feet long with one 90-degree bend.

(2) Gravity vent openings in attics shall be as close to code minimum in number and size as practical.

(3) Bathroom, laundry and similar exhaust ducts connecting the interior space to the outdoors shall contain at least a five-foot length of internal sound-absorbing duct lining. Exhaust ducts less than five feet in length shall be fully lined and shall also meet the provisions of AK104.2 (3). Each duct shall be provided with a bend in the duct such that there is no direct line of sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated glass fiber duct liner at least one inch thick. In areas (i.e., shower rooms) which produce moisture, duct lining shall be made of nonabsorbent material; commercial kitchen exhaust systems and product conveying duct systems shall be exempt.

(4) Fireplaces shall be provided with well-fitted dampers and tightly fitting glass or metal doors.

(5) Through-wall fans and air conditioning units are not allowed.