

**3109 Lubbock Avenue, Fort Worth, Texas 76109 Tel: 817-922-9000 / Fax: 817-922-9100**

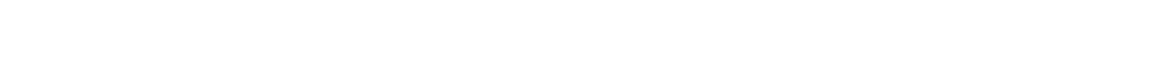
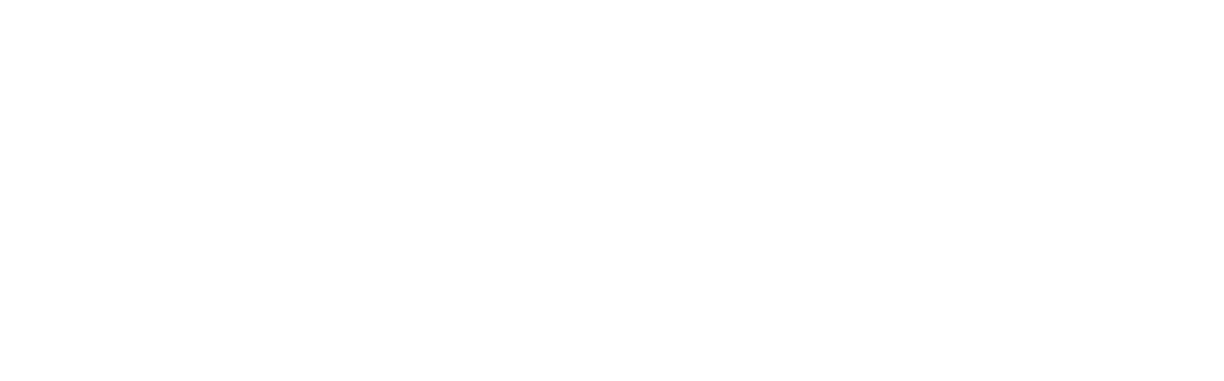
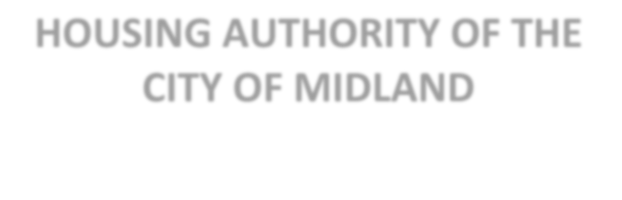
**Satellite Office: Washington D.C. Metro Area and Houston Texas**

***E-Mail Address:*** [*ResidentLife@nelrod.com*](mailto:ResidentLife@nelrod.com) *-* ***Web Site:*** [*www.nelrod.com*](http://www.nelrod.com/)

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**April 2018**



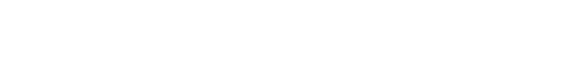
**HOUSING AUTHORITY OF THE**

**CITY OF MIDLAND**

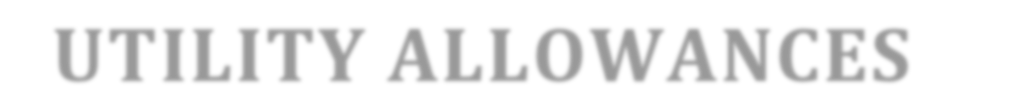
Midland, Texas

**PUBLIC HOUSING**

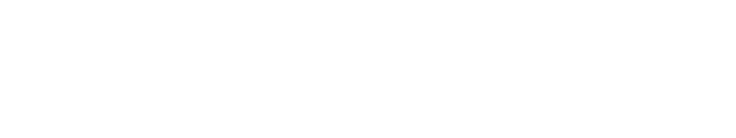
**SURVEY AND STUDY**



**INITIAL REPORT**

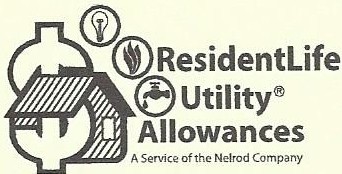


**UTILITY ALLOWANCES**



**3109 Lubbock Avenue**

**Fort Worth,Texas 76109**

**E-mail: ResidentLife@nel rod.com** · **Web** [**Site:www.nelrod.com**](http://www.nelrod.com/)

**Phone 817-922-9000**

**Fax 817-922-9100**

May l l, 2018

Teressa Thompson-Davis, Executive Director Housing Authority of the City of Midland 700 **W** Scharbauer Dr

Midland, TX 79705

**Re: Public Housing Utility Allowances Survey and Study - 2018**

Dear Ms. Thompson-Davis:

Residentlife Utility Allowances® is pleased to enclose a draft copy of the Public Housing Utility Allowances Survey and Study. The Proposed Utility Allowances are located in the Survey and Study Results section of your study analysis.

Residentlife Utility Allowances is putting our seal of compliance on the work we perform for your agency certifying that we have developed your Utility Allowances in compliance with HUD Regulations and guid elines. ***We* recommend *that you post your* adopted *utility allowance schedule(s)* on *your* webpage. We *have* made *this process easy for you by providing, by email,* an *electronic version of your currently updated Utility Allowances in* a *pdf format that is ready to upload directly to your website .*** This format displays our Seal of Certified Compliance assuring residents, Agency staff, HUD

representatives, or other interested parties, that an approved method was used to efficiently and accurately develop your utility allowances and that the utility allowances are current .

HUD regulations state that the Agency shall give notice to all residents of proposed utility allowances, scheduled surcharges and revisions not less than 60 days before the proposed effective date of the allowances. The Agency shall also provide all residents an opportunity to submit written comments during a period expiring not less than 30 days before the proposed effective date of the allowances.

As a reminder: HUD regulations state that housing authorities shall **review allowances at least annually** and revise allowances established if there has been a l 0% increase or decrease in utility rate and charges. Please contact Residentlife Utility Allowa nc es® about this time next year to see if we can be of service for your annual review.

Note that notice of the availability of relief from surcharges or payment of utility supplier billings in excess of the allowances for resident-purchased utilities should be included in each notice to residents given in accordance with §965.502(c) and in the information given to new resid en ts upon admission.

Please carefully review this draft report for any identifiable problems, changes,

*changes or*

*corrections, and/or special needs and let me know if you have any*

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*r* , *exa. s Washington, D.C*

questions as soon as possible. If no changes are requested this report will serve as a final report. **Please see the attached Closure Acceptance Statement, sign and return as soon as possible and contract us regarding the Seal of Complianc e.** You can contact me at (817) 922-9000 ext 139 or [cheryl@nelrod.com.](mailto:cheryl@nelrod.com) It is a pleasure working with your agency.

Sincerely,

Cheryl Lord

Residentlife Utility Allowances® Director Enclosure

Disclaimer: Residentlife Utility Allow a nc es® will make any necessary corrections to work previously

performed prior to submission of final report. It is important to note that many local communities have different rate struc ture s, weather patterns, types of c harge s, etc. Residentlife Utility Allowances® has made every *effort* to be as accurate as possible, but will not be held responsible for changes involving different methodologies, rate struc tures , regulatory changes, omission and/or misinformation of cost calculation data from utility provid ers, selection of most advantageous cost calculation methodology in areas with multiple costing methods, and inaccurate allowances resulting from lack of information or data not provided by the agency.

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3109 Lubbock Avenue

FortWorth,Texas 76109



E-mail: ResidentLife @nelrod.com · Web [Site:www.nelrod.com](http://www.nelrod.com/)

### Closure Acceptance Statement

Phone 817-922-9000

Fax 817-922-9100

Residentlife Utility Allowances Director

**Re: Public Housing Utility Allowances Survey and Study - 2018**

Upon signing this Closure Statement I, \_ \_ \_ \_

\_ \_ \_

\_ \_ \_

\_ \_ \_ , on behalf of

the **Housing Authority of the City of Midland, TX** acknowledge receipt of the draft survey study report.

I, or a member of our agency staff, have reviewed this draft report and have requested edits, changes or additions if needed. Our agency now accepts this survey study report as final. This does not mean that we will adopt these results as our Agency's ac tual allowances.

Signed

Signature Title

Print Name Date

**Please sign and fax to:**

**The Nelrod Company - (817) 922-9100**

**within 30 days**

**Job# 1553-RU-001**

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*A Division ofThe Ne/rod Company Fort Worth,Texas. Washington, D.C*

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ResidentLife Utility Allowances

*INTRODUCTION*

Public Housing Authorities are responsible for establishing allowances for utilities (natural gas, electricity, water, etc.) purchased directly by residents from utility providers. These allowances represent fixed dollar amounts that are deducted from residents' monthly Total Tenant Payment.

Allowances are established for each dwelling unit category and unit size and should approximate reasonable consumption by an energy-conservative household of modest circumstances consistent with requirements of a safe, sanitary and healthful living environment. Additionally, Housing Agencies are allowed to provide monthly or quarterly consumption allowances for PHA-furnished utilities where dwelling units are individually check-metered, and residents may be surcharged for excess usage.

Housing Agencies shall review allowances at least annually and revise established allowances if there **has been a ten percent (10%) increase or decrease in utility rates and charges since the last time the utility allowances were adjusted**.

The **Housing Authority of the City of Midland, TX** has recognized the need for a review and update of its Public Housing consumptions and utility allowances and has contracted with ResidentLife Utility Allowances® to develop updated utility allowances for each dwelling unit category and unit size for 100 units at 1 development where the electric utility is resident-paid. This study will utilize an Engineering-based methodology to determine monthly utility consumptions. ResidentLife Utility Allowances will conduct a Public Housing Utility Allowance Survey and Study based on the following: (1) a fair estimate of the work and cost required to conduct the survey and study, (2) an experienced consulting team that has extensive working knowledge of PHA operations, utility allowance development, and application experience, and (3) quality client service.

Our goals in undertaking this work are: (1) to deliver practical products that staff can use in completing their day-to-day activities, (2) to write and communicate clearly in order to be accurate in what we write and say with regard to analysis, description of conditions, and costs, (3) not to recommend a change unless it has a clear benefit to the agency and residents, and (4) to work with the Executive Director, Agency staff, Commissioners, and residents in an open and professional manner and include their input to the maximum extent possible.

This Public Housing Utility Allowance study will be conducted in accordance with 24 CFR Part 965, Subpart E, Resident Allowances for Utilities, the Utility Allowance Guidebook, and all applicable federal, state, and local laws and regulations.

*Note: In the course of providing services, copyrighted materials existing prior to this study may be utilized. This material is being provided for the use of the Housing Authority of the City of Midland, TX staff only and may not be used by other agencies without written permission from The Nelrod Company. The Nelrod Company retains the rights to all copyrighted materials.*

# OBJECTIVES AND METHODOLOGY

OBJECTIVES AND METHODOLOGY PUBLIC HOUSING

*This study was conducted in compliance with the Public Housing Utility Allowance HUD Regulations 24 CFR 965, Subpart E – Resident Allowances for Utilities, and HUD’s Utility Allowance Guidebook.*

*Objective*

The objective of this survey and study is to develop Public Housing utility allowances with current utility rates and charges for resident-paid electric utilities. The **Housing Authority of the City of Midland, TX** has 100 dwelling units at 1 development. This study includes 3 schedules due to different building types (High Rise Apartment, Row House, and Semi-Detached) . We will utilize an acceptable engineering-based methodology which takes into consideration structure type, unit size, and equipment. At the all- electric Hillcrest Manor development electricity is resident-paid. **Additionally, all of the units have energy efficient windows.** These utility allowances are based upon a reasonable consumption of an energy conservative family of modest circumstances and to provide for the basic essentials needed for a living environment that is safe, sanitary and healthful.

*Methodology*

1. *Data Gathering*

The Agency completed and returned ResidentLife Utility Allowance’s Public Housing Development Characteristics chart for this development with resident- paid utilities. The Agency also completed and returned a ResidentLife Utility Allowances’ **Customization & Energy Efficient Measures for Base REM/Rate Models** form for this development. These completed forms contain site-specific information, data, and characteristics which include, but are not limited to, building type, bedroom sizes, approximate age of development, fuel types, construction materials, window types, mechanicals, and energy efficiencies.

1. *Data on Climatic Conditions*

A utility allowance specialist obtained data on climatic conditions from the National Oceanographic and Atmospheric Administration National Climatic Data Center (NCDC) which has climatic data covering most major cities of North America. This data is updated periodically by the NCDC, when new annual data is available.

Specific climatic data was gathered for the City of **Midland, Texas** (Annual Summary 2017). This data was entered into the ResidentLife Utility Allowance

software database by a specialist and was used to develop a Heating Degree Day (HDD) factor which was then applied to the average winter consumption totals for heating. This adjustment will normalize the consumptions. The **HDD Factor is 1.46**.

Note that the Cooling Degree Day (CCD) factor is not utilized since air conditioning usage is not reimbursed to residents, per HUD regulations 24 CFR

965.505 (e).

1. *Create Customized Models*

Over 17,000 energy engineering building structure models have been created by qualified licensed professionals for the ResidentLife Utility Allowances® software database. The REM/Rate software program utilized to develop these building structure models is HUD compliant. Sources for developing these models include: HUD Regulations 24 CFR Part 965, Subpart E, Resident Allowances for Utilities, REM/Rate™ Home Energy Rating software program, Energy Conservation for Housing…A Workbook – 1998, IECC (International Energy Conservation Code) – 2000, Utility Allowance Guidebook – 2008, Calculating Consumptions and Utility Allowances – 1986, Mechanicals – 1992, and PIH Notice 90-8 T.D.C. For more information see Introduction to REM/Rate Software Program and REM/Rate Software Default Audit in Support Documentation section of this study.

Different models were created for each possible location and number of stories of the sample unit at this development (for example: inside unit, end unit, 1-story, 2-story, top floor, bottom floor, etc.). These models were then averaged together.

A ResidentLife Utility Allowances specialist analyzed the criteria provided by the Agency on the Development Characteristics chart and Customization & Energy Efficient Measures for Base REM/Rate Models forms. The specialist then input the site-specific criteria into the ResidentLife Utility Allowance software database.

*Note: HUD regulations for Public Housing (24 CFR 965.505 (e)) do not allow for air conditioning in the utility allowances, therefore air conditioning consumptions were eliminated from the models and consumption totals.*

1. *Computation of Average Monthly Consumption*

This was performed in the following manner:

**Electric Consumptions**

A utility allowance specialist exported and analyzed the reports generated by

the ResidentLife Utility Allowance software database. These reports contain consumption usage for **electric** utilities for the **Hillcrest Manor** development, by building type, and for applicable bedroom sizes. The monthly average consumption contains heating usage, therefore these consumptions were climatically adjusted in the software program. Generated reports are provided in the Support Documentation section at the back of the study.

Next, the utility allowance specialist entered these adjusted monthly electric consumptions into the **Monthly Utility Consumptions Totals** chart and into the **Cost of Consumption** calculation forms, for **Reliant Energy**, by applicable bedroom size and structure type for the **Hillcrest Manor** development.

1. *Obtain Utility Rates and Charges*

The following information was gathered by a rate specialist and input in the Utility Providers Residential Rates and Charges document:

Documentation on current residential **electric** rates and charges from **Reliant Energy** through their internet website and telephone inquiries.

Residents do not pay for natural gas, water, sewer, or trash collection utilities/services.

1. *Computation of Utility Allowances*

The following process was conducted by a utility allowance specialist to develop utility allowances: **(See Cost of Consumptions)**

**Reliant Energy’s** current residential rates and charges for **electric** usage (kwh) were applied to the adjusted monthly average consumption figures to determine an average cost of consumption for each size unit at the Hillcrest Manor development. A weighted average was then calculated and applied to the utility allowance totals.

Residents do not pay for natural gas, water, sewer, or trash collection utilities/services.

See Chart 1 for Proposed Public Housing Monthly Utility Allowances. This chart is found in the Survey and Study Results section of this report.

1. *Utility Allowance Schedule*

Utility Allowance Schedules are not subject to approval by HUD before becoming effective, but will be reviewed in the course of audits or reviews of Agency operations (24 CFR 965.502(d)).

1. *Notification, Display and Comment Period*

**Per HUD regulations (24 CFR 965.502(c)), the Agency shall give notice to all residents of proposed allowances, scheduled surcharges, and revisions not less than 60 days before the proposed effective date of the allowances. The Agency should provide all residents an opportunity to submit written comments during a period expiring not less than 30 days before the proposed effective date of the allowances.**

**Additionally, for your convenience we have provided a SAMPLE Resident Notice for the agency to adjust to their needs. See sample and instructions in the back of this study.**

1. *Support Documentation*

Per HUD regulations (24 CFR 965.502(b)) the Agency must maintain a record that documents the basis on which allowances and scheduled surcharges, and revisions thereof, are established and revised. Such record shall be available for inspection by residents and HUD.

This report contains a copy of all such supporting documentation, including a copy of HUD Regulations: 24CFR 965.501-508, Subpart E – Resident Allowances for Utilities.

1. *Annual Update*

HUD regulations (24 CFR 965.507) state that housing authorities **shall review allowances at least annually** and **revise allowances established if there has been a 10% increase or decrease in utility rates** and charges.

If annual revisions are only a result of rate changes, such rate changes are not subject to the 60-day notice requirement of sec. 965.502(c). Agency should give at least a 30-day notice to residents.

1. *Individual Relief*

We have included Individual Relief Medical Equipment Allowances in the Survey and Study Results section of this report.

Please note that notice of the availability of relief from surcharges or payment of utility provider billings in excess of the allowances for resident-purchased utilities should be included in each notice to residents given in accordance with

§965.502(c) and in the information given to new residents upon admission. Agencies should have written procedures regarding Individual Relief in their Admission and Continued Occupancy (ACOP) policies.

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# SURVEY AND STUDY RESULTS

SURVEY AND STUDY RESULTS PUBLIC HOUSING

Public Housing (Conventional) utility allowances were calculated for electricity for the **Housing Authority of the City of Midland, TX.** The Agency has 100 dwelling units at 1 development where allowances were developed by structure type and unit size, for resident-paid utilities. This study includes 3 schedules due to different building types (High Rise Apartments, Row Houses, and Semi-Detached) . At the all-electric Hillcrest Manor development electricity is resident-paid. **Additionally, all of the units have energy efficient windows.**

The proposed Public Housing monthly utility allowances are shown in Chart 1 on the following page.

*This study was conducted in compliance with the Public Housing Utility Allowance HUD Regulations 24CFR 965, Subpart E – Resident Allowances for Utilities.*

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ResidentLife Utility Allowances



**HOUSING AUTHORITY OF THE CITY OF MIDLAND, TX**

**PUBLIC HOUSING**

**PROPOSED MONTHLY UTILITY ALLOWANCES**

**Chart 1**

**INITIAL 2018**

**Building Type: High Rise Apartment**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hillcrest Manor (All Electric)**  **(EE Equip: Win)** | **0BR** | **1BR** | 2BR | 3BR | 4BR | 5BR |
| Electricity (L&A,H,WH,C) | **$83.00** | **$83.00** |  |  |  |  |

**Building Type: Row House/Townhouse**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hillcrest Manor (All Electric)**  **(EE Equip: Win)** | **0BR** | **1BR** | 2BR | 3BR | 4BR | 5BR |
| Electricity (L&A,H,WH,C) | **$79.00** | **$79.00** |  |  |  |  |

**Building Type: Semi-Detached/Duplex**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hillcrest Manor (All Electric)**  **(EE Equip: Win)** | **0BR** | **1BR** | **2BR** | 3BR | 4BR | 5BR |
| Electricity (L&A,H,WH,C) | **$85.00** | **$85.00** | **$102.00** |  |  |  |

A monthly average cost of the summer and winter adjustments were used for the electric costs.

L&A= Lights & Appliances EE Equip= Energy Efficient Equipment H= Space Heating Win= Windows

WH= Water Heating C= Cooking

**Note: Public Housing utility allowances are calculated similar to the method used by each utility provider. These allowances are not calculated by end use (like Section 8 HCV), but by total usage for each utility type. Utility providers' monthly charges are included in the calculations.**

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#### *Individual Relief* Medical Equipment Allowances

**Electricity - Reliant Energy**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Item** | **Hours**  **per Day** | **Wattage** | **Monthly**  **kWh** | **Energy**  **Charge** | **Utility**  **Allowance** |
| Oxygen Concentrator | 18 | 400 | 219 | 0.105556 | $23.00 |
| Nebulizer | 2 | 75 | 5 | 0.105556 | $1.00 |
| Electric Hospital Bed | 0.2 | 200 | 1 | 0.105556 | $1.00 |
| Alternating Pressure Pad | 24 | 70 | 51 | 0.105556 | $5.00 |
| Low Air-Loss Mattress | 24 | 120 | 88 | 0.105556 | $9.00 |
| Power Wheelchair/Scooter | 3 | 360 | 33 | 0.105556 | $3.00 |
| CPAP Machine | 10 | 30 | 9 | 0.105556 | $1.00 |

***Oxygen Concentrator***

Use per day varies, assume 12-14 hours a day.

The 5-Liter model uses 400 W, the 3-Liter model uses 320 W.

***Nebulizer***

A medicine delivery system used mostly for pediatric care. Used 4-6 times a day for 20 minutes at a time at 75W.

***Semi/Fully Electric Hospital Bed***

Use depends on adjustments. 200 W.

***Alternating Pressure Pad***

An air-filled mattress overlay.

Used 24 hours a day for someone who is bed-ridden.

***Low Air-Loss Mattress***

Takes the place of mattress - air -filled pressurized mattress. Cycles air around every 15-20 minutes.

***Power Wheelchairs and Scooters***

Need to be charged approximately 8 hours every 3 days. Batteries are 120 V, 3 Amp, 360 W.

***CPAP Machine***

Used for Sleep Apnea. Machines run only at night for people who have a tendency to stop breathing at night. At maximum pressure use is 40 Watts. On average - 30 Watts.

# MONTHLY CONSUMPTION TOTALS & BUILDING TYPE DESCRIPTIONS

##### HOUSING AUTHORITY OF THE CITY OF MIDLAND, TX

**PUBLIC HOUSING**

**MONTHLY UTILITY CONSUMPTION TOTALS**

Consumptions developed using an engineering method - 2018

(Heating consumptions climatically adjusted with HDD factor - 2017)

**Building Type: High Rise Apartment**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hillcrest Manor (All Electric)**  **(EE Equip: Win)** | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Electricity (kWh) S(L&A,WH,C) | 425 | 425 |  |  |  |  |
| Electricity (kWh) W(L&A,H,WH,C) | 934 | 934 |  |  |  |  |

**Building Type: Row House/Townhouse**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hillcrest Manor (All Electric)**  **(EE Equip: Win)** | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Electricity (kWh) S(L&A,WH,C) | 402 | 402 |  |  |  |  |
| Electricity (kWh) W(L&A,H,WH,C) | 889 | 889 |  |  |  |  |

**Building Type: Semi-Detached/Duplex**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hillcrest Manor (All Electric)**  **(EE Equip: Win)** | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Electricity (kWh) S(L&A,WH,C) | 425 | 425 | 518 |  |  |  |
| Electricity (kWh) W(L&A,H,WH,C) | 973 | 973 | 1184 |  |  |  |

L&A= Lights & Appliances EE Equip= Energy Efficient Equipment

H= Space Heating Win= Windows S= Summer

WH= Water Heating W= Winter

C= Cooking

Summer: April - September (6), Winter: October - March (6) Seasons based on climatic data.

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**Building Type (Structure) Descriptions**

1. **Apartment/Walk-Up/Condominium/Garden Apartment/Low-Rise/Flat (Apt)**
   1. Building with a group of 3 individual **units** with common walls; attached to other units; separate entrances, and may have common staircases.
   2. Each **building** may have an end unit, inside unit, top unit, bottom unit, etc.

**Building** will have 2 or more stories.

* 1. Usually, but not always, there will be units on both sides of building.

1. **High Rise Apartment (H-R)**

A multi-unit building; 5 or more stories; sharing one or more common entrances. May have an elevator.

1. **Row House/Townhouse/Triplex/Fourplex/Multiplex (RH)**
   1. An individual unit attached to other individual units; 2 or more common walls; separate ground level entrances; 1 or 2 story **units**.
   2. Each building will have end units and inside units.
   3. Fourplex units usually share 2 common walls; can be square-shaped or L- shaped.
   4. Triplex building can be V-shaped.
2. **Semi-Detached/Duplex (S-D or SD)**

Building with 2 individual housing units; with separate entrances; one common wall; 1 or 2 story units.

1. **Detached House (DH)**

A detached building intended to house one family; sits on its own piece of land; not attached to another dwelling.

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# UTILITY ALLOWANCE COST OF CONSUMPTION CALCULATIONS

##### HOUSING AUTHORITY OF THE CITY OF MIDLAND, TX

**PUBLIC HOUSING**

**UTILITY ALLOWANCE COST OF CONSUMPTION CALCULATIONS**

**ELECTRICITY - Reliant Energy**

**INITIAL 2018**

**Hillcrest Manor (All Electric) Building Type: High Rise Apartment**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monthly Average Unit | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Consumption kWh  for all bedroom types - **Summer** | 425 | 425 |  |  |  |  |
| Total Monthly Charges (If < 800)  Per Month $13.44 | $13.44 | $13.44 |  |  |  |  |
| Total Energy Charges  Per KWH 0.105556 | $44.86 | $44.86 |  |  |  |  |
| *Subtotal* | $58.30 | $58.30 |  |  |  |  |
| Total Taxes  % of Total 3.4137% | $1.99 | $1.99 |  |  |  |  |
| **Total Monthly Cost - Summer** | **$60.29** | **$60.29** |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monthly Average Unit | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Consumption kWh  for all bedroom types - **Winter** | 934 | 934 |  |  |  |  |
| Total Monthly Charges (If > 800)  Per KWH 3.49 | $3.49 | $3.49 |  |  |  |  |
| Total Energy Charges  Per KWH 0.105556 | $98.59 | $98.59 |  |  |  |  |
| *Subtotal* | $102.08 | $102.08 |  |  |  |  |
| Total Taxes  % of Total 3.4137% | $3.48 | $3.48 |  |  |  |  |
| **Total Monthly Cost - Winter** | **$105.56** | **$105.56** |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Averaging Months | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| **Summer** Annual Avg 6 | $361.74 | $361.74 |  |  |  |  |
| **Winter** Annual Avg 6 | $633.36 | $633.36 |  |  |  |  |
| **Total Monthly Cost**  **(Based on Annual Average)** | **$82.93** | **$82.93** |  |  |  |  |

Summer: April - September (6), Winter: October - March (6) Seasons based on climatic data.

##### HOUSING AUTHORITY OF THE CITY OF MIDLAND, TX

**PUBLIC HOUSING**

**UTILITY ALLOWANCE COST OF CONSUMPTION CALCULATIONS**

**ELECTRICITY - Reliant Energy**

**INITIAL 2018**

**Hillcrest Manor (All Electric) Building Type: Row House/Townhouse**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monthly Average Unit | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Consumption kWh  for all bedroom types - **Summer** | 402 | 402 |  |  |  |  |
| Total Monthly Charges (If < 800)  Per Month $13.44 | $13.44 | $13.44 |  |  |  |  |
| Total Energy Charges  Per KWH 0.105556 | $42.43 | $42.43 |  |  |  |  |
| *Subtotal* | $55.87 | $55.87 |  |  |  |  |
| Total Taxes  % of Total 3.4137% | $1.91 | $1.91 |  |  |  |  |
| **Total Monthly Cost - Summer** | **$57.78** | **$57.78** |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monthly Average Unit | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Consumption kWh  for all bedroom types - **Winter** | 889 | 889 |  |  |  |  |
| Total Monthly Charges (If > 800)  Per KWH 3.49 | $3.49 | $3.49 |  |  |  |  |
| Total Energy Charges  Per KWH 0.105556 | $93.84 | $93.84 |  |  |  |  |
| *Subtotal* | $97.33 | $97.33 |  |  |  |  |
| Total Taxes  % of Total 3.4137% | $3.32 | $3.32 |  |  |  |  |
| **Total Monthly Cost - Winter** | **$100.65** | **$100.65** |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Averaging Months | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| **Summer** Annual Avg 6 | $346.68 | $346.68 |  |  |  |  |
| **Winter** Annual Avg 6 | $603.90 | $603.90 |  |  |  |  |
| **Total Monthly Cost**  **(Based on Annual Average)** | **$79.22** | **$79.22** |  |  |  |  |

Summer: April - September (6), Winter: October - March (6) Seasons based on climatic data.

##### HOUSING AUTHORITY OF THE CITY OF MIDLAND, TX

**PUBLIC HOUSING**

**UTILITY ALLOWANCE COST OF CONSUMPTION CALCULATIONS**

**ELECTRICITY - Reliant Energy**

**INITIAL 2018**

**Hillcrest Manor (All Electric) Building Type: Semi-Detached/Duplex**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monthly Average Unit | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Consumption kWh  for all bedroom types - **Summer** | 425 | 425 | 518 |  |  |  |
| Total Monthly Charges (If < 800)  Per Month $13.44 | $13.44 | $13.44 | $13.44 |  |  |  |
| Total Energy Charges  Per KWH 0.105556 | $44.86 | $44.86 | $54.68 |  |  |  |
| *Subtotal* | $58.30 | $58.30 | $68.12 |  |  |  |
| Total Taxes  % of Total 3.4137% | $1.99 | $1.99 | $2.33 |  |  |  |
| **Total Monthly Cost - Summer** | **$60.29** | **$60.29** | **$70.45** |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Monthly Average Unit | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| Consumption kWh  for all bedroom types - **Winter** | 973 | 973 | 1184 |  |  |  |
| Total Monthly Charges (If > 800)  Per KWH 3.49 | $3.49 | $3.49 | $3.49 |  |  |  |
| Total Energy Charges  Per KWH 0.105556 | $102.71 | $102.71 | $124.98 |  |  |  |
| *Subtotal* | $106.20 | $106.20 | $128.47 |  |  |  |
| Total Taxes  % of Total 3.4137% | $3.63 | $3.63 | $4.39 |  |  |  |
| **Total Monthly Cost - Winter** | **$109.83** | **$109.83** | **$132.86** |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Averaging Months | **0BR** | **1BR** | **2BR** | **3BR** | **4BR** | **5BR** |
| **Summer** Annual Avg 6 | $361.74 | $361.74 | $422.70 |  |  |  |
| **Winter** Annual Avg 6 | $658.98 | $658.98 | $797.16 |  |  |  |
| **Total Monthly Cost**  **(Based on Annual Average)** | **$85.06** | **$85.06** | **$101.66** |  |  |  |

Summer: April - September (6), Winter: October - March (6) Seasons based on climatic data.

# SUPPORT DOCUMENTATION

# UTILITY PROVIDER RATES AND CHARGES

##### HOUSING AUTHORITY OF THE CITY OF MIDLAND, TX

**PUBLIC HOUSING**

**Utility Providers Residential Rates and Charges As of April 2018**

**INITIAL 2018**

**ELECTRICITY**

**Source: Reliant Energy**

877-524-5231 [www.reliant.com](http://www.reliant.com/)\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year Round** |  |  | Secure | Advantage | 12 |
|  | **Tiers\*** | **If < 800** | **If > 800** | | |
| Usage Charge | Per Month | $9.95 | $0.00 | | |
| Oncor Electric Delivery Charges | Per Month | $3.49 | $3.49 | | |
| **Total Monthly Charges** | Per Month | **$13.44** | **$3.49** | | |
|  | **Tiers\*** | **All** |  | | |
| Energy Charge | Per KWH | 0.071 |  | | |
| Oncor Electric Delivery Charges | Per KWH | 0.034556 |  | | |
| **Total Energy Charges** | Per KWH | **0.105556** |  | | |
| Public Utility Gross Receipts Tax | % of Total | 0.1667% |  | | |
| Misc Gross Receipts Tax (pop > 10000) | % of Total | 1.997% |  | | |
| City Sales Tax | % of Total | 1.25% |  | | |
| **Total Taxes** | % of Total | **3.4137%** |  | | |

Z:\2018\2018 Allowances\_Utility\Agency UA Studies 2018\Midland, TX\PH New Study-2018\Midland TX-PH-INITIAL-Linked Charts-Apr 2018 1

# UTILITY PROVIDER DOCUMENTATION

### Texas Taxes

**Public Utility Gross Receipts Assessment**

**Public Utility Gross Receipts Assessment**

A fee is imposed on each public utility within the jurisdiction of the Public Utility Commission.

**Rate Details and Other Information**

**Rates**

Public Utility Gross Receipts Tax:

1/6 of 1% (.001667) of gross receipts from rates charged to the ultimate customers in Texas.

**Miscellaneous Gross Receipts Tax**

Percentage of gross receipts from business done in incorporated cities and towns, according to population:

* 1,000 to 2,499 = .581% (.00581)
* 2,500 to 9,999 = 1.07% (.0107)
* 10,000 or more = 1.997% (.01997)

Listing of Cities with sales tax for electricity and natural gas - <http://www.window.state.tx.us/taxinfo/utility/gas_elec.html>

For individual city rates – [www.window.state.tx.us/taxinfo/local/city.html](http://www.window.state.tx.us/taxinfo/local/city.html)

[**http://www.window.state.tx.us/taxinfo/audit/utility/ch3.htm#nontaxableutil**](http://www.window.state.tx.us/taxinfo/audit/utility/ch3.htm#nontaxableutil)

**Nontaxable Utilities**

The following types of utilities are exempt from taxation under the Miscellaneous Gross Receipts Tax:

* + A plant or utility used for distribution but who does not make retail sales to the ultimate consumer within an incorporated city or town in this state. (*Tax Code, Sec. 182.021*)
  + **Municipal utilities:**

Any utility owned and operated by any city or town, county, water improvement district or conservation district. (*Tax Code, Sec. 182.026*)

* + **Co-ops:**

A utility organized under the "Electric Cooperative Corporation Act" is exempt. (*Miscellaneous Tax Rule. 3.52*)

4/20/2018 midland tx population - Google Search



nd population

 **Sign in**

**All **es News Maps Shopping More Settings Tools About 905,000 results (0.43 seconds)

Sources include: United States Census Bureau *Feedback*



**Mid** d / Population

**134,610 (2016)**

**250,0CO**

252,506

**200,oco**

**150,0CO**

.

* Midland 134,610

**100,0CO**

Odessa 117,871

50,000

0

1990

1995

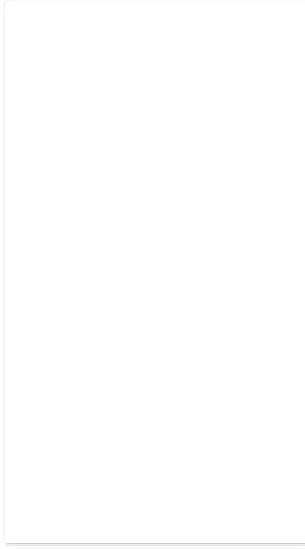
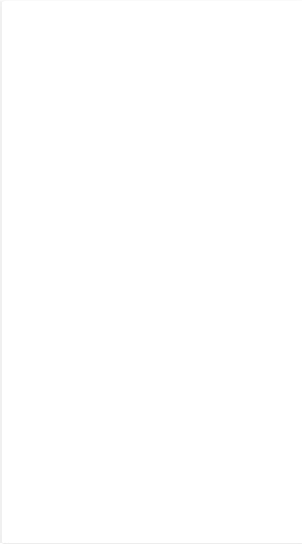
2000

2005

2010

2015

**Explore more**



City i exas

is a city in western Texas. Part of the P oil industry center. At the Permian Basin Petrole exhibits detail the history of local oil exploration a replica 1930s oil town with a land office and g 1939, the George W. Bush Childhood Home has 1950s state, when the 43rd president lived there

Population elsewhere

Amarillo Abilene

San Angelo

Source include: United States Census Bureau

**Midi** , **Texas** - **Wikipedia**

**htt ps:// en.wikipedia.org/ wiki/ Midland,\_Te xas** ...

At the 2010 census, the population of Midland was **111,147,** and a 2015 estimate gave a total of 132,950, making it the twenty-fourth most populous city in the state of Texas. Due to the oil boom in Midland, certain officials have given population estimates above **155,000.**

**Counties:** Midland, Martin **State:** Texas

**Area code(s):** 432 **Elevation:** 2,782 ft (848 m) History · Geography · Demographics · Arts and culture

Midland, Texas (TX) profile: population, maps, real estate, averages ...

[www.city-data.com / city / Midland-Texas.html](http://www.city-data.com/city/Midland-Texas.html) ...

Single-family new house construction building permits: 1997: 266 buildings, average cost: $706,600; 1998: 244 buildings, average cost: $110,800; 1999: 127 buildings, average cost: $112,200; 2000: 158

buildings, average cost: $708,700; 2001: 154 buildings, average cost: $713,000; 2002: 227 buildings, average cost: .

Midland, Texas Population 2017, 2018 - Suburban Stats

https :// suburbanstats.org > Texas > Counties And Cities in TX ...

Midland Texas Population 2017 2018, Midland Texas Population 2018, Midland Texas Population 2017, Midland Texas Demographics 2017 2018, Midland Texas Statistics 2017 2018.

Race and Ethnicity in Midland, Texas (City) - Statistical Atlas

https :// statisticalatlas.com / place/ Texas/ Midland/ Race-and-Ethnicity

Race and Ethnicity#1. Percentage of the total population. Scope: population of Texas and Midland.

**Midland. Texas.** 0% 10% 20% 30% 40% 50% Count White 1 Hispanic 2 Black Asian Mixed 1 Other 1

50.6% 58.7k 38.7% 44.8k 7.7% 8,893 1.5% 1,779 1.1% 1,286 0.4% 475.

Midland, TX Population & Demographics - AreaVibes

[www.area vibes.com](http://www.areavibes.com/) / midland-tx/ demographics / ...

Midland demographics profile. Midland, TX has a population of **728,057** and is the 214th largest city in the United States. The population density is **1,722** per sq mi which is **1676%** higher than the Texas average and 1800% higher than the national average.

Demographics I Midland EDC - Midland Development Corporation

https :// midlandt xed c. com / demographics ...

For additional information see Real Estate Center **Texas** A&M University **Midland** MSA Market Research or contact **Midland** Development Corporation for data ... **Population** Summary - City of **Midland. Population,** Total,%. 2021 Projection, 146,883. 2016 Estimate, 132,950. 2010 Census,

111,147.2000 Census, 95,768.

Midland Texas Population 2018 (Demographics, Maps, Graphs)

worldpopulationreview.com / us-cities/ midland-tx-population / ...

23

h ttps://[www.google.com/search?q=midland+tx+population&oq=midland+tx+popul&aqs=chrom.Oe.Ol2](http://www.google.com/search?q=midland%2Btx%2Bpopulation&amp;oq=midland%2Btx%2Bpopul&amp;aqs=chrom.Oe.Ol2) j69i57j013.5348j0j7&sourceid=chrome&ie=UTF-8

**TEXAS SALES AND USE TAX RATES-January 2018**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Local Code** | **Local Rate** | **Total Rate** |  | **Name** | **Local Code** | **Local Rate** | **Total Rate** |
| McMahan |  |  | .067500 |  | **Mertens** | 2109117 | .010000 | .082500 |
| Caldwell Co 4028008 | | .005000 |  | Hill Co | | 4109000 | .005000 | |
| McNeil | |  | .067500 | Hill Co ESD 2 | | 5109518 | .005000 | |
| Caldwell Co | 4028008 | .005000 |  | Mertzon (Irion Co) | | 2118018 | .010000 | .072500 |
| McNeil (Travis Co) |  |  | .072500 | Mesquite (Dallas Co) | | 2057039 | .020000 | .082500 |
| Austin MTA | 3227999 | .010000 |  | Mesquite (Kaufman Co) | | 2057039 | .020000 | .082500 |
| McQueeney | |  | .067500 | Mexia (Limestone Co) | | 2147013 | .020000 | .082500 |
| Guadalupe Co 4094007 | | .005000 |  | Miami (Roberts Co) | | 2197012 | .020000 | .082500 |
| **Meador Grove** | |  | .067500 | **Mico** | |  |  | .082500 |
| Bell Co 4014004 | | .005000 |  | Medina Co | | 4163003 | .005000 |  |
| Meadow 2223029 | | .010000 | .077500 | Medina Co ESD 1 | | 5163511 | .015000 |  |

Te rry Co

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4223001 .005000 Middleton  2079168 .020000 .082500 Leon Co 4145006 | | | | | .005000 | .067500 |
| .067500 Midland 2165010 | | | | | .012500 | .080000 |
| 4099002 .005000 Midland Co 4165001 | | | | | .005000 |  |
|  |  | .067500 | Midlothian (El lis Co) | 2070050 | .020000 | .082500 |
| 4010008 | .005000 |  | Midway | 2154022 | .015000 | .082500 |

Meadows Place (Fort Bend Co)

**Medicine Mound**

**Hardeman Co**

Medina

Bandera Co

Meeker

Meeks

**Jefferson Co**

Bell Co

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| .067500 Madison Co 4154004 | | | | | .005000 |  |
| 4123002 .005000 **Milam** | | | | |  | .067500 |
| .067500 Sabine Co 4202006 | | | | | .005000 |  |
| 4014004 .005000 **Milano** 2166055 | | | | | .015000 | .082500 |
| 2005041 .010000 .077500 Milam Co 4166000 | | | | | .005000 |  |
| 4005005 .005000 Mildred 2175143 | | | | | .010000 | .077500 |
| 2043170 .020000 .082500 **Navarro Co** 4175009 | | | | | .005000 |  |
| .072500 **Miles** 2200026 | | | | | .015000 | .082500 |
| 5174509 .010000 **Runnels Co** 4200008 | | | | | .005000 |  |
| 2160024 | .010000 | .080000 | Milford (El lis Co) | 2070121 | .010000 | .072500 |
| 4160006 | .005000 |  | Milheim |  |  | .067500 |

Meg arge l

Archer Co Melissa (Collin Co)

Melrose (Nacogdoches Co)

Nacogdoches Co Hosp Dist

Melvin

McCulloch Co

McCulloch Co Hosp Dist Memphis (Hall Co)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 5160505 .002500 Aust in Co 4008002 | | | | | .005000 |  |
| 2096014 .020000 .082500 **Miller Grove** | | | | |  | .067500 |
| 2164011 .015000 .082500 Hopkins Co 4112005 | | | | | .005000 |  |
| 4164002 .005000 Millers Cove 2225054 | | | | | .010000 | .077500 |
| .067500 Tit us Co 4225009  4028008 .005000 **Millersview** | | | | | .005000 | .067500 |
| .077500 Concho Co 4048004 | | | | | .005000 |  |
| 4109000 .005000 **Millican** | | | | |  | .067500 |
| 5109527 .010000 **Brazos Co** 402 1005 | | | | | .005000 |  |
| .067500 Millsap 2184080 | | | | | .012500 | .080000 |
| 4045007 .005000 Park er Co 4184008 | | | | | .005000 |  |
| 2108038 .020000 .082500 **Mims** | | | | |  | .067500 |
| .070000 **Brazoria Co** 4020006 | | | | | .005000 |  |
| 4160006 .005000 **Mineola** 2250016 | | | | | .015000 | .082500 |
| 5160505 .002500 Woo d Co 4250007  .067500 **Mineral** | | | | | .005000 | .067500 |
| 4226008 | .005000 |  | Bee Co | 4013005 | .005000 |  |
| 2018028 | .015000 | .082500 | Mineral Wells | 2182019 | .015000 | .082500 |
| 40 18000 .005000 Palo Pinto Co 4182000 | | | | | .005000 |  |
| .067500 Mineral Wells 2182019 | | | | | .015000 | .082500 |
| 4116001 | .005000 |  | Par ke r Co | 4184008 | .005000 | |
| 2221021 | .020000 | .082500 |  |  |  | |

**Menard**

Menard Co Mendoza

Caldwell Co

**Menlow**

**Hill** Co

**Hill** Co ESD 2-A

Mentz

Colorado Co Mercedes (Hidalgo Co) **Mercury**

McCulloch Co McCulloch Co Ho s p Dist

**Mereta**

**Tom Green Co**

**Meridian**

**Bosque Co**

Merit

Hunt Co Merkel (Taylor Co)

|  |  |  |  |
| --- | --- | --- | --- |
| **Electricity Facts Label Reliant Energy Retail Services, LLC Reliant Secure Advantage® 12 plan Oncor Electric Delivery service area**  **Date: 03/01/2018** | | | |
| ***Electricity price*** | Average monthly use: 500 kWh 1000 kWh 2000 kWh Average price per kWh: 13.2¢ 10.9¢ 10.7¢  This price disclosure is based on the following components:  Usage Charge: $9.95 per billing cycle < 800 kWh  $0.00 per billing cycle:::: 800 kWh Energy Charge: 7.1¢ perkWh  Oncor Electric Delivery Charges: $3.49 per month and 3.4556¢ per kWh  *Oncor Electric Delivery Charges include all recurring charges from Oncor Electric passed through without mark-up*  *This price disclosure is an example based on average prices* - *your average price for electricity service will vary according to your usage. The price you pay each month will consist of the Usage Charge, Energy Charge, and Oncor Electric Delivery Charges. The Usage Charge will not be included for each billing cycle in which your usage is 800 kilowatt hours (kWh) or more.* | | |
| ***Other Key Terms and***  ***questions*** | *See Terms of Service statement.for.full listing o.ffees, deposit policy, and other terms.* | | |
| ***Disclosure Chart*** | Type of Product | I Fixed Rate | |
| Contract Term | I 12 months | |
| Do I have a termination fee or any fees associated with terminating service? | | Yes. $150. Applies through the end of the contract term. This fee does not apply if the customer moves, and provides a forwarding address and other evidence that may be requested to verify that the customer  moved. |
| Can my price change during the contract period? | | Yes |
| If my price can change, how will it change and by how much? | | The price applied in the first billing cycle may be different from the price in this EFL if there are changes in TDSP charges; changes to the Electric Reliability Council of Texas or Texas Regional Entity administrative fees charged to loads; or changes resulting from federal, state or local laws or regulatory actions that impose new or modified fees or costs that  are outside our control. |
| What other fees may I be charged? | | Fees not included in the price above: Disconnect Notice Fee: $10; Returned Payment Charge: $25; Disconnect Recovery: $30; Service Processing Fee: up to $5.95; Late Payment Penalty: 5% of past due balances; Information on other non-recurring fees is available in the pricing section of your Terms of  Service. |
| Is this a pre-pay or pay in advance product? | I No | |
| Does Reliant purchase excess distributed  renewable generation? | I Yes | |
| Renewable Content | I This product is 10% renewable. | |
| Statewide average for renewable content | I The statewide average for renewable content is 17%. | |
| Reliant, PO Box 3765, Houston, TX, 77253  *reliant.com ,* e-mail: [service@reliant.com,](mailto:service@reliant.com) phone: 1-866-RELIANT, 24 hours a day / 7 days a week PUCT Certificate Number #10007 | | | |

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**DEVELOPMENT CHARACTERISTICS**

N

-...J

[ HOUSING AGENCY Housing Authority of the City of Midland, TX j

DEVELOPMENT CHARACTERISTICS CHART

for Utility Allowances

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Development | | Year  Built | Building  Type\*\* | Total#  Units | f Units by Bedroom | | | | | | Resident-Paid Utilities (See\* below) | | | | | A/C? | |
| Name | HA Code | 0 | 1 | 2 | 3 4 | | 5 Electric | | N Gas | Water | Sewer | Trash | Central | Window |
| OMHA- Hillcrest Manor | TX379 | 1976 | H-R&  Cottages S-D & RH | 100 | 57 | 39 | 4-SD | |  |  | TIP | None | PIP | P/P | P/P | 43 | 57 |
| COMHA- Langtry Village | 800021026 | 1985 | HR-5 story | 85 | 20 | 65 |  |  |  |  | P/P | P/P | P/P | PIP | PIP |  | 85 |
| COMHA- Parker Place | TX21S941009 | 1997 | Row House | 40 |  | 40 | 1 |  |  |  | T/P | None | P/P | P/P | P/P | 41 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *J IP=* Tenant Pay (I-Resident-Paid) | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| P/P= Property Pay (M-Master-Metered) | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Hillcreast Manor-Public Housing: 4 story HR ( 41 OBR & 23 1BR) & Cottages (16 OBR & 16 1BR SD & RH) Parker Place-PRAC 202 Elderly: all 1Row Houses

\* Please indicate one of the following under each utility:

M (Master-Metered:) The development has one master-meter per building and the Agency pays the utility bills.

I (Re sid ent-Pa id) : There are individual meters for each unit and the resident pays the utility directly to the utility provider.

C (Check-Metered by agency): There are individual meters for each unit but the Agency pays the utility

company and charges the resident for excess utility usage.

\*\* Building Types: Walk-Up/Apartment; Row House/Townhouse; Semi-Detached/Duplex; Detached House

Please fax to (817) 922-9100 attn: Cheryl Lord with a copy of current allowances

© 2008 The Nelrod Company, Fort Worth, Texas

Z:\201812018 Allowances\_Utility\Technical Assistance Order Forms- TAs\Consortium Partner Quotes\Midland, TX-RFP PH New & 202 Historical\Development Characteristic Chart

# CUSTOMIZATION FOR BASE REM/RATE MODELS

**Housing Agency:** (City of Midland Housing Authority

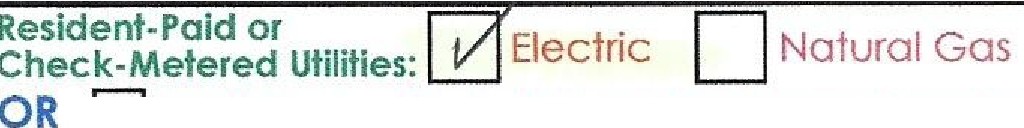
**Customization & Energy Efficiency Measures for Base REM/Rate Models**

*Please check appropriate box(s) for each development and note if different for other bedroom sizes in development. NOTE: Use separate* form *if criteria is different for* BR *sizes* or more *than* one *building type per d evelopme nt.* ***Blue te xt represents energy efficiency mea sure s/e q uipme nt.***

**Development Name** & **No.:** HillcrestM anor TX379

**Building: Year Built:**I1976 I**Structure Type:** D Apt **Iv'**IHigh Rise Iv'IRH SD D DH

Legend: **Apt= Ap rtment , RH= Row** House, **SD= Semi-Detached/Duplex.** DH= **Detached House**

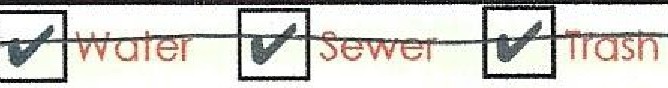


**All Utilities are Master Metered (Pald by the Agency) (Stop** here if **ALL** utilities are Master Metered)

**Bedroom Sizes: OBR** l

BR

2BR [J3sR 04BR 05BR D6BR



|  |  |  |  |
| --- | --- | --- | --- |
| **1** | **Foundation Type: Window Type:**  # **of Stories in Unit:** | 0concrete Slab D Pier -Beam {Crawl Space) DBasement  Osingle Pane 0 o ouble Pane/ Lo w -E O o oub le Pane Vinyl GZ}one*If I-/* ;...- S?) Otwo 0Buil?ing has multiple  stones | |
| **2** |
| **3** |
| **4a** | **Heating Fuel: 0Electrlc ONatural Gas Doil**  **Is Heating Individually Metered? 0ves ONo**  **Heating Type:** DElectric Baseboard Ocentral Boiler (Radiant) D1ndividual Boiler  **Energy Efficiencies** 0 Hea t Pump 0Forced Air Furnace w/ ducts/ Wall unit HPSee I-- I  Dor Panels **O cenergy Efficient)** Gas Furnace (48k/94 AFUE)  **Heating Equipment Location:** D Conditioned Space conditioned Space | | |
| **4b** |
| **4c** |
| **4d** |
|  | | * (attic/garage) |
| ***5*** | **Air Ducts:**  If ***Yes,* location:** | 0Yes No  *Dconditioned Space Dunconditioned Space (attic)* | |
| **6a**  **6b 6c** | **Water Heater: 0Electric 0Natural Gas Don**  **Energy Efficiencies** D Eiee Tank .93 EF D Gas Ta n k .62 EF D sola r Panels  D Eiee Tank .95 EF 0 Gas Tankless .69 EF (Add i! iona l In format ion will be needed)  D Eiee Tankless 0 Gas Tankless .80 EF  **Water Heater Type:** 01ndividual units Ocentral Boiler  **Water Htr Location:** *0conditioned Space Dunconditioned* Space *(attic/garage)* | | |
| ***6*** | **Stove/Range:** | **0electric 0Natural Gas** | |
| **8** | **Energy Efficiencies: Insula tion:**  **Low Flow Water:** | O c eiling (R-30) O c eiling (R-38) D wa11 {R-13)  O showe r, Faucets, &/or Toilets **Ligh ting:D 100 %** CFL/LED | |

**Notes/Comments:**



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# DEVELOPMENT REPORTS

5/3/2018 Nelrod ResidentLife Utility Allowance - Developments

**Current Study**

**Type: Low-Rent Utility Study - [New] Date: May 1, 2018**

**Agency: Housing Authority of the City of Midland, TX**

**Logout**

**Home ResidentLife Utility Allowance® Calculator**

**Administration**

**Choose Agency New Agency Edit Agency Users**

**Climate Regions**

**Utility Study**

**Developments Utility Companies Utility Rates**

**Calculate**



Family NO NO

16 or more years

**Developments / AMPs**

**INSTRUCTIONS**

Use the Development Characteristics Chart and the Energy Customization Charts for reference.

Click on tabs below in number order and answer questions. Don't **[SAVE]** until tabs 1 - 4 have been completed. **[SAVE]** will take you back to this screen.

To **start** click on **[ADD DEVELOPMENT]** button below.

After all development information has been input, click **[HOME]** and go to 2. Utility Companies.

**Details**

What is the development's name? What is the development's extension number? What is the development's building type?



|  |  |
| --- | --- |
| Hillcrest Manor (All Electric) |  |
| (EE Equip: Win) |
| High Rise Apartment | |

**Cost of Consumption Average Costs Proposed Allowances Compare Allowances**

**Export**

**Utility Rates**

**Cost of Consumption Average Costs**

**Total Consumptions Proposed Allowances Compared Allowances**

**Low-Rent Study**

What type of residents occupy the development?

Are water saving devices used? Do the units have air conditioning? How old is the development?

**Utilities**

What utility is used for space heating? What utility is used for domestic hot water? What utility is used for cooking stove?

Do the Residents pay for natural gas? Do the Residents pay for electricity?

Do the Residents pay for water or sewer? Do the Residents pay for trash pickup?

[Click here for **HELP** with building type descriptions.](http://apps.nelrod.com/ua/downloads/Building_Type_Descriptions.htm)

**New Open/Edit**



NO YES NO NO

|  |  |  |
| --- | --- | --- |
| Electricity | |  |
| Electricity | | |
| Electricity |  | |

**Section 8 Study**

**Unit Details**

**New Open/Edit**

How many units? Is there a pier beam foundation

(Crawlspace)?



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR**  1 |  |  | **1 BR**  1 |  |  | **2 BR**  0 |  |  | **3 BR**  0 |  |  | **4 BR**  0 |  |  | **5 BR**  0 |  |  | **6 BR**  0 |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
|  | YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |

Are there double-pane or Low-E



windows? Is there an electric base board?



Is there a heat pump?



Is there a space heater in unconditioned space?



Is there domestic hot water in unconditioned space?



Are there ducts in the attic? Is this a 2-story unit?



**Energy Improvements (Natural Gas) - SHOW Energy Improvements (Electric) - SHOW**



Save Delete Reset

5/3/2018 Nelrod ResidentLife Utility Allowance - Developments

**End-Use Consumptions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR** | **1 BR** | **2 BR** | **3 BR** | **4 BR** | **5 BR** | **6 BR** |
| Space Heating (kWh) | 349 | 349 |  |  |  |  |  |
| Domestic Hot Water (kWh) | 210 | 210 |  |  |  |  |  |
| Lights & Appliances (kWh) | 168 | 168 |  |  |  |  |  |
| Cooking Stove (kWh) | 47 | 47 |  |  |  |  |  |
| Water & Sewer (Gallons) | 1550 | 3100 |  |  |  |  |  |

**End-Use Consumption Calculations - SHOW Adjusted Consumption Totals**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR** | **1 BR** | **2 BR** | **3 BR** | **4 BR** | **5 BR** | **6 BR** |
| Electricity Winter (kWh) | 934 | 934 |  |  |  |  |  |
| Electricity Summer (kWh) | 425 | 425 |  |  |  |  |  |

**Consumption Total Adjustment Calculations - SHOW Select a Development / AMP**



|  |  |  |  |
| --- | --- | --- | --- |
| Available Developments: | | Hillcrest Manor (All Electric) - HR TX-(EE Equip: Win) Hillcrest Manor (All Electric) - RH TX-(EE Equip: Win) Hillcrest Manor (All Electric) - SD TX-(EE Equip: Win) | |
| Add Development | Edit Development | |  |



5/3/2018 Nelrod ResidentLife Utility Allowance - Developments

**Current Study**

**Type: Low-Rent Utility Study - [New] Date: May 1, 2018**

**Agency: Housing Authority of the City of Midland, TX**

**Logout**

**Home ResidentLife Utility Allowance® Calculator**

**Administration**

**Choose Agency New Agency Edit Agency Users**

**Climate Regions**

**Utility Study**

**Developments Utility Companies Utility Rates**

**Calculate**



Family NO NO

16 or more years

**Developments / AMPs**

**INSTRUCTIONS**

Use the Development Characteristics Chart and the Energy Customization Charts for reference.

Click on tabs below in number order and answer questions. Don't **[SAVE]** until tabs 1 - 4 have been completed. **[SAVE]** will take you back to this screen.

To **start** click on **[ADD DEVELOPMENT]** button below.

After all development information has been input, click **[HOME]** and go to 2. Utility Companies.

**Details**

What is the development's name? What is the development's extension number? What is the development's building type?



|  |  |
| --- | --- |
| Hillcrest Manor (All Electric) |  |
| (EE Equip: Win) |
| Row House/Townhouse | |

**Cost of Consumption Average Costs Proposed Allowances Compare Allowances**

**Export**

**Utility Rates**

**Cost of Consumption Average Costs**

**Total Consumptions Proposed Allowances Compared Allowances**

**Low-Rent Study**

What type of residents occupy the development?

Are water saving devices used? Do the units have air conditioning? How old is the development?

**Utilities**

What utility is used for space heating? What utility is used for domestic hot water? What utility is used for cooking stove?

Do the Residents pay for natural gas? Do the Residents pay for electricity?

Do the Residents pay for water or sewer? Do the Residents pay for trash pickup?

[Click here for **HELP** with building type descriptions.](http://apps.nelrod.com/ua/downloads/Building_Type_Descriptions.htm)

**New Open/Edit**



NO YES NO NO

|  |  |  |
| --- | --- | --- |
| Electricity | |  |
| Electricity | | |
| Electricity |  | |

**Section 8 Study**

**Unit Details**

**New Open/Edit**

How many units? Is there a pier beam foundation

(Crawlspace)?



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR**  1 |  |  | **1 BR**  1 |  |  | **2 BR**  0 |  |  | **3 BR**  0 |  |  | **4 BR**  0 |  |  | **5 BR**  0 |  |  | **6 BR**  0 |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
|  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |

Are there double-pane or Low-E



windows? Is there an electric base board?



Is there a heat pump?



Is there a space heater in unconditioned space?



Is there domestic hot water in unconditioned space?



Are there ducts in the attic? Is this a 2-story unit?



**Energy Improvements (Natural Gas) - SHOW Energy Improvements (Electric) - SHOW**



Save Delete Reset

5/3/2018 Nelrod ResidentLife Utility Allowance - Developments

**End-Use Consumptions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR** | **1 BR** | **2 BR** | **3 BR** | **4 BR** | **5 BR** | **6 BR** |
| Space Heating (kWh) | 334 | 334 |  |  |  |  |  |
| Domestic Hot Water (kWh) | 187 | 187 |  |  |  |  |  |
| Lights & Appliances (kWh) | 168 | 168 |  |  |  |  |  |
| Cooking Stove (kWh) | 47 | 47 |  |  |  |  |  |
| Water & Sewer (Gallons) | 1550 | 3100 |  |  |  |  |  |

**End-Use Consumption Calculations - SHOW Adjusted Consumption Totals**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR** | **1 BR** | **2 BR** | **3 BR** | **4 BR** | **5 BR** | **6 BR** |
| Electricity Winter (kWh) | 889 | 889 |  |  |  |  |  |
| Electricity Summer (kWh) | 402 | 402 |  |  |  |  |  |

**Consumption Total Adjustment Calculations - SHOW Select a Development / AMP**



|  |  |  |  |
| --- | --- | --- | --- |
| Available Developments: | | Hillcrest Manor (All Electric) - HR TX-(EE Equip: Win) Hillcrest Manor (All Electric) - RH TX-(EE Equip: Win) Hillcrest Manor (All Electric) - SD TX-(EE Equip: Win) | |
| Add Development | Edit Development | |  |



5/3/2018 Nelrod ResidentLife Utility Allowance - Developments

**Current Study**

**Type: Low-Rent Utility Study - [New] Date: May 1, 2018**

**Agency: Housing Authority of the City of Midland, TX**

**Logout**

**Home ResidentLife Utility Allowance® Calculator**

**Administration**

**Choose Agency New Agency Edit Agency Users**

**Climate Regions**

**Utility Study**

**Developments Utility Companies Utility Rates**

**Calculate**



Family NO NO

16 or more years

**Developments / AMPs**

**INSTRUCTIONS**

Use the Development Characteristics Chart and the Energy Customization Charts for reference.

Click on tabs below in number order and answer questions. Don't **[SAVE]** until tabs 1 - 4 have been completed. **[SAVE]** will take you back to this screen.

To **start** click on **[ADD DEVELOPMENT]** button below.

After all development information has been input, click **[HOME]** and go to 2. Utility Companies.

**Details**

What is the development's name? What is the development's extension number? What is the development's building type?



|  |  |
| --- | --- |
| Hillcrest Manor (All Electric) |  |
| (EE Equip: Win) |
| Semi-Detached/Duplex | |

**Cost of Consumption Average Costs Proposed Allowances Compare Allowances**

**Export**

**Utility Rates**

**Cost of Consumption Average Costs**

**Total Consumptions Proposed Allowances Compared Allowances**

**Low-Rent Study**

What type of residents occupy the development?

Are water saving devices used? Do the units have air conditioning? How old is the development?

**Utilities**

What utility is used for space heating? What utility is used for domestic hot water? What utility is used for cooking stove?

Do the Residents pay for natural gas? Do the Residents pay for electricity?

Do the Residents pay for water or sewer? Do the Residents pay for trash pickup?

[Click here for **HELP** with building type descriptions.](http://apps.nelrod.com/ua/downloads/Building_Type_Descriptions.htm)

**New Open/Edit**



NO YES NO NO

|  |  |  |
| --- | --- | --- |
| Electricity | |  |
| Electricity | | |
| Electricity |  | |

**Section 8 Study**

**Unit Details**

**New Open/Edit**

How many units? Is there a pier beam foundation

(Crawlspace)?



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR**  1 |  |  | **1 BR**  1 |  |  | **2 BR**  1 |  |  | **3 BR**  0 |  |  | **4 BR**  0 |  |  | **5 BR**  0 |  |  | **6 BR**  0 |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| YES |  |  | YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| YES |  |  | YES |  |  | YES |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
| NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |
|  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |  |  | NO |

Are there double-pane or Low-E



windows? Is there an electric base board?



Is there a heat pump?



Is there a space heater in unconditioned space?



Is there domestic hot water in unconditioned space?



Are there ducts in the attic? Is this a 2-story unit?



**Energy Improvements (Natural Gas) - SHOW Energy Improvements (Electric) - SHOW**



Save Delete Reset

5/3/2018 Nelrod ResidentLife Utility Allowance - Developments

**End-Use Consumptions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR** | **1 BR** | **2 BR** | **3 BR** | **4 BR** | **5 BR** | **6 BR** |
| Space Heating (kWh) | 376 | 376 | 457 |  |  |  |  |
| Domestic Hot Water (kWh) | 210 | 210 | 257 |  |  |  |  |
| Lights & Appliances (kWh) | 168 | 168 | 209 |  |  |  |  |
| Cooking Stove (kWh) | 47 | 47 | 52 |  |  |  |  |
| Water & Sewer (Gallons) | 2463 | 4013 | 5563 |  |  |  |  |

**End-Use Consumption Calculations - SHOW Adjusted Consumption Totals**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0 BR** | **1 BR** | **2 BR** | **3 BR** | **4 BR** | **5 BR** | **6 BR** |
| Electricity Winter (kWh) | 973 | 973 | 1184 |  |  |  |  |
| Electricity Summer (kWh) | 425 | 425 | 518 |  |  |  |  |

**Consumption Total Adjustment Calculations - SHOW Select a Development / AMP**



|  |  |  |  |
| --- | --- | --- | --- |
| Available Developments: | | Hillcrest Manor (All Electric) - HR TX-(EE Equip: Win) Hillcrest Manor (All Electric) - RH TX-(EE Equip: Win) Hillcrest Manor (All Electric) - SD TX-(EE Equip: Win) | |
| Add Development | Edit Development | |  |



# CURRENTLY ADOPTED UTILITY ALLOWANCES

.... -·

UTILITY ALLOWANCE SCHEDULE HOUSING AUTHORITY OF MIDLAND, TEXAS PUBLIC HOUSING PROJECT TX379

l\lETHODOLOGY

The utility allowance calculations indicated herein are based on the following criteria:

* Baseline average monthly consumption for electricity calculated using 12 month historical data provided by OnCor
* Allowances include heating, water heating, cooking, refrigeration, lighting and miscellaneous appliances
* .Monthly consuinption adjusted to be representative of conservative household operation
* TXU Retail Energy bundled deregulated residential rate ($ Uf61klYff>

UTILITY ALLOWANCE SCHEDULE

0 Bedroom Dwelling Units

Mont ly Allowance - Electricity: $36.00 *(* 400 kWh)

l Bedroom Dwelling Units

Monthly Allowance - Electricity: $41.00 (450 kWh)

2 Bedroom **Dwelling** Units

Monthly Allowance - Electricity: $50.00 (550 kWh)

Notes:

l. This Project is total electric.

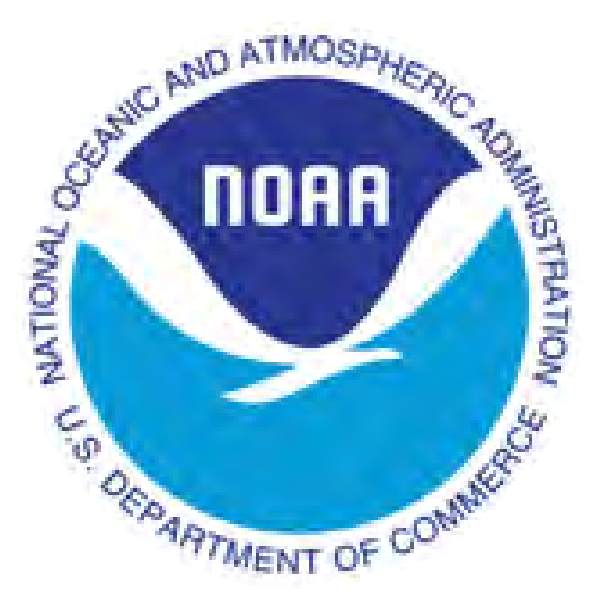
1. Bundled electric rates include customer charge, energy charge, fuel factor charge, T&**D** charges and all ancillary charges.
2. All allowances have been rounded.
3. \Vater, sewer and trash collection services provided by Management.

Date of Calculations: May 25, 2016

"1<e2 CONSULTANTS • ROee"T I<. eeIN II, GE:M GeA

1.21; GANTE!RBURY ORIYE! • ABIL.E:N!, TEXAS *i'1602* • *(9:25)* 6iS-'1:221

**LOCAL CLIMATOLOGICAL DATA ANNUAL CLIMATIC DATA SUMMARY**

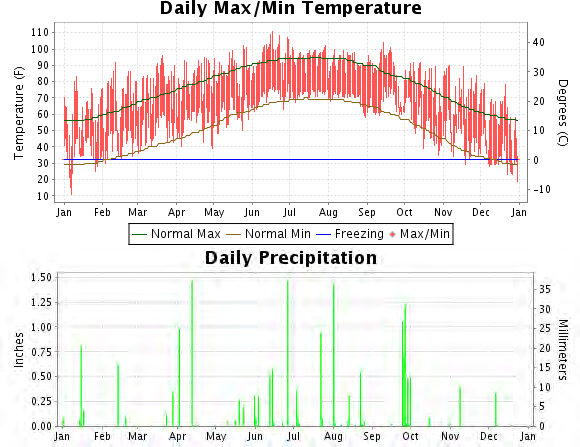
**2017**

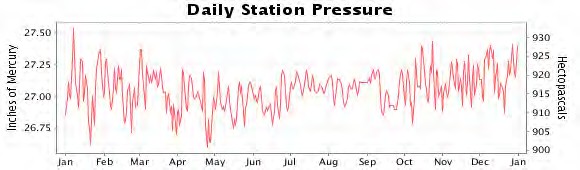
# LOCAL CLIMATOLOGICAL DATA

**ANNUAL SUMMARY WITH COMPARATIVE DATA**

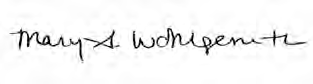
**MIDLAND, TEXAS (KMAF)**

**ISSN 0198-5124**





**I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER.**

**NATIONAL OCEANIC AND**

**ATMOSPHERIC ADMINISTRATION**

**NATIONAL ENVIRONMENTAL SATELLITE, DATA**

**AND INFORMATION SERVICE**

**NATIONAL CENTERS for ENVIRONMENTAL INFORMATION (NCEI)** 4**A**0**SHEVILLE, NORTH CAROLINA**

**DIRECTOR NCEI**

### METEOROLOGICAL DATA FOR 2017

###### MIDLAND (KMAF)

**LATITUDE: 31° 56'N**

**LONGITUDE: 102° 12'W**

**ELEVATION (FT): GRND: 2862 BARO: 2866**

**TIME ZONE: CENTRAL (UTC -6)**

**WBAN: 23023**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ELEMENT** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **YEAR** |
| **TEMPERATURE °F** | MEAN DAILY MAXIMUM | 60.5 | 71.9 | 79.2 | 81.4 | 87.7 | 97.1 | 96.2 | 92.2 | 88.5 | 79.5 | 73.3 | 59.3 | 80.6 |
| HIGHEST DAILY MAXIMUM | 83 | 92 | 96 | 95 | 102 | 111 | 102 | 100 | 104 | 92 | 90 | 79 | 111 |
| DATE OF OCCURRENCE | 11 | 11 | 21 | 24 | 25 | 17 | 30 | 06 | 14 | 14+ | 06 | 04 | JUN 17 |
| MEAN DAILY MINIMUM | 35.0 | 42.5 | 49.8 | 54.1 | 59.9 | 70.8 | 72.3 | 69.7 | 66.2 | 53.2 | 45.2 | 32.9 | 54.3 |
| LOWEST DAILY MINIMUM | 11 | 30 | 36 | 39 | 48 | 62 | 67 | 58 | 59 | 35 | 29 | 19 | 11 |
| DATE OF OCCURRENCE | 07 | 03 | 02 | 30 | 05+ | 03 | 06 | 31 | 11 | 28 | 19 | 31 | JAN 07 |
| AVERAGE DRY BULB | 47.8 | 57.2 | 64.5 | 67.8 | 73.8 | 84.0 | 84.2 | 81.0 | 77.3 | 66.4 | 59.3 | 46.1 | 67.5 |
| MEAN WET BULB | 38.7 | 44.3 | 51.4 | 55.3 | 57.3 | 67.7 | 68.3 | 68.7 | 63.3 | 55.0 | 48.9 | 37.9 | 54.7 |
| MEAN DEW POINT | 27.4 | 30.3 | 38.9 | 44.1 | 42.6 | 58.9 | 59.9 | 62.7 | 54.3 | 45.0 | 38.8 | 29.0 | 44.3 |
| NUMBER OF DAYS WITH: |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MAXIMUM >= 90° | 0 | 1 | 6 | 8 | 12 | 25 | 29 | 23 | 17 | 4 | 1 | 0 | 126 |
| MAXIMUM <= 32° | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| MINIMUM <= 32° | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 30 |
| MINIMUM <= 0° | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **H/C** | HEATING DEGREE DAYS COOLING DEGREE DAYS | 525  0 | 230  17 | 116  108 | 61  151 | 3  285 | 0  578 | 0  605 | 0  503 | 7  382 | 103  152 | 211  47 | 577  1 | 1833  2829 |
| **RH** | MEAN (PERCENT) HOUR 00 LST  HOUR 06 LST  HOUR 12 LST  HOUR 18 LST | 52  57  66  41  38 | 44  48  63  33  28 | 47  55  68  37  27 | 49  58  68  39  31 | 39  44  62  28  23 | 48  55  71  38  32 | 47  53  67  39  33 | 58  65  79  49  40 | 51  55  65  42  38 | 51  61  67  40  35 | 54  61  74  41  39 | 60  68  74  52  46 | 50  57  69  40  34 |
| **W/O** | NUMBER OF DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI) THUNDERSTORMS | 3  1 | 3  1 | 1  2 | 0  2 | 0  6 | 0  9 | 0  6 | 0  7 | 1  2 | 1  1 | 4  0 | 7  0 | 20  37 |
| **PR** | MEAN STATION PRESS. (IN.) MEAN SEA-LEVEL PRESS. (IN.) | 27.08  30.02 | 27.03  29.93 | 27.07  29.96 | 26.95  29.82 | 26.96  29.81 | 26.96  29.79 | 27.09  29.92 | 27.07  29.91 | 27.05  29.90 | 27.11  29.99 | 27.12  30.03 | 27.18  30.14 | 27.06  29.94 |
| **WINDS** | RESULTANT SPEED (MPH) | 3.5  25  11.0  25  47  30  01  60  30  01 | 2.6  25  11.2  25  39  04  12  46  25  23 | 5.7  18  12.4  18  47  16  23  57  16  23 | 3.6  19  13.7  18  39  28  04  50  27  04 | 4.1  16  13.1  14  35  16  31  46  31  22 | 6.7  15  11.6  16  55  25  12  67  25  12 | 8.5  15  10.9  16  43  07  22  66  09  22 | 4.8  12  8.8  16  53  36  22  60  01  22 | 6.9  14  10.8  15  36  27  15  51  27  15 | 4.0  16  10.9  17  38  02  15  46  03  15 | 2.3  22  9.9  18  40  01  18  47  03  21 | 0.8  20  9.3  25  31  03  24  38  04  24 | 3.6  17  11.1  16  55  25  JUN 12  67  25  JUN 12 |
| RES. DIR. (TENS OF DEGS.) |
| MEAN SPEED (MPH) |
| PREVAIL.DIR.(TENS OF DEGS.) |
| MAXIMUM 2-MINUTE WIND |
| SPEED (MPH) |
| DIR. (TENS OF DEGS.) |
| DATE OF OCCURRENCE |
| MAXIMUM 3-SECOND WIND: |
| SPEED (MPH) |
| DIR. (TENS OF DEGS.) |
| DATE OF OCCURRENCE |
| **PRECIPITATION** | WATER EQUIVALENT: | 1.12  0.81  15  4  2  0 | 0.72  0.62  13  2  2  0 | 0.48  0.35  28  3  2  0 | 2.48  1.48  12-13  4  2  1 | 0.89  0.31  31  5  3  0 | 3.05  1.47  26  9  4  1 | 1.48  1.02  22-23  5  2  0 | 2.52  1.44  01  10  3  1 | 4.07  1.93  25-26  9  5  2 | 0.13  0.09  15  2  0  0 | 0.40  0.40  08  1  1  0 | 0.39  0.36  06-07  4  1  0 | 17.73  1.93  SEP 25-26  58  27  5 |
| TOTAL (IN.) |
| GREATEST 24-HOUR (IN.) |
| DATE OF OCCURRENCE |
| NUMBER OF DAYS WITH: |
| PRECIPITATION 0.01 |
| PRECIPITATION 0.10 |
| PRECIPITATION 1.00 |
| **SNOWFALL** | SNOW,ICE PELLETS,HAIL | T T 27+  0  0 | 0.0  0.0  0  0 | T T 28  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | 0.0  0.0  0  0 | T T 31+  0  0 | T T  DEC 31+  0  0 |
| TOTAL (IN.) |
| GREATEST 24-HOUR (IN.) |
| DATE OF OCCURRENCE |
| MAXIMUM SNOW DEPTH (IN.) |
| DATE OF OCCURRENCE |
| NUMBER OF DAYS WITH: |
| SNOWFALL >= 1.0 |

### NORMALS, MEANS, AND EXTREMES

###### MIDLAND (KMAF)

**LATITUDE: 31° 56'N**

**LONGITUDE: 102° 12'W**

**ELEVATION (FT): GRND: 2862 BARO: 2866**

**TIME ZONE: CENTRAL (UTC -6)**

**WBAN: 23023**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ELEMENT** | **POR** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **YEAR** |
| **TEMPERATURE °F** | NORMAL DAILY MAXIMUM | 30 | 57.4 | 62.4 | 70.2 | 79.2 | 87.6 | 93.4 | 94.6 | 93.6 | 86.9 | 77.9 | 66.6 | 58.1 | 77.3 |
| MEAN DAILY MAXIMUM | 69 | 57.4 | 62.3 | 70.4 | 79.2 | 86.8 | 93.3 | 94.6 | 93.7 | 86.7 | 78.0 | 66.4 | 58.8 | 77.3 |
| HIGHEST DAILY MAXIMUM | 70 | 84 | 92 | 96 | 104 | 108 | 116 | 112 | 107 | 107 | 101 | 90 | 85 | 116 |
| YEAR OF OCCURRENCE |  | 1974 | 2017 | 2017 | 2012 | 2000 | 1994 | 1989 | 1964 | 1953 | 2000 | 2017 | 1954 | JUN 1994 |
| MEAN OF EXTREME MAXS. | 69 | 76.4 | 81.0 | 87.2 | 93.2 | 99.7 | 103.2 | 102.0 | 101.5 | 97.6 | 91.4 | 82.4 | 76.8 | 91.0 |
| NORMAL DAILY MINIMUM | 30 | 30.3 | 34.5 | 41.0 | 49.3 | 59.5 | 67.3 | 69.7 | 68.8 | 62.0 | 51.8 | 39.2 | 30.8 | 50.4 |
| MEAN DAILY MINIMUM | 69 | 30.1 | 34.1 | 41.0 | 49.9 | 59.3 | 67.3 | 69.8 | 68.9 | 62.4 | 51.9 | 39.4 | 31.8 | 50.5 |
| LOWEST DAILY MINIMUM | 70 | -8 | -11 | 9 | 20 | 32 | 47 | 53 | 54 | 36 | 24 | 11 | -1 | -11 |
| YEAR OF OCCURRENCE |  | 1962 | 1985 | 1980 | 1973 | 2013 | 1983 | 1978 | 1989 | 1989 | 1993 | 2001 | 1989 | FEB 1985 |
| MEAN OF EXTREME MINS. | 69 | 14.5 | 18.2 | 23.7 | 33.7 | 45.1 | 57.5 | 63.5 | 62.4 | 49.5 | 37.2 | 24.0 | 17.3 | 37.2 |
| NORMAL DRY BULB | 30 | 43.9 | 48.5 | 55.6 | 64.2 | 73.6 | 80.3 | 82.1 | 81.2 | 74.5 | 64.8 | 52.9 | 44.4 | 63.8 |
| MEAN DRY BULB | 69 | 43.8 | 48.2 | 55.7 | 64.6 | 73.0 | 80.4 | 82.2 | 81.3 | 74.6 | 65.0 | 52.9 | 45.3 | 63.9 |
| MEAN WET BULB | 34 | 32.2 | 35.1 | 40.6 | 46.4 | 55.2 | 63.4 | 65.0 | 64.8 | 60.7 | 51.9 | 40.9 | 33.8 | 49.2 |
| MEAN DEW POINT | 34 | 30.2 | 33.0 | 37.7 | 42.9 | 52.8 | 61.8 | 62.8 | 63.1 | 58.9 | 50.3 | 38.8 | 31.1 | 47.0 |
| NORMAL NO. DAYS WITH: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MAXIMUM >= 90 | 30 | 0.0 | 0.0 | 0.4 | 3.7 | 13.3 | 21.0 | 25.6 | 24.1 | 11.1 | 2.1 | 0.0 | 0.0 | 101.3 |
| MAXIMUM <= 32 | 30 | 0.9 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | 2.2 |
| MINIMUM <= 32 | 30 | 18.3 | 10.7 | 4.7 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 6.4 | 17.2 | 58.2 |
| MINIMUM <= 0 | 30 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| **H/C** | NORMAL HEATING DEG. DAYS NORMAL COOLING DEG. DAYS | 30  30 | 656  0 | 465  2 | 307  16 | 112  90 | 16  281 | 0  461 | 0  532 | 0  502 | 11  295 | 98  93 | 370  7 | 637  0 | 2672  2279 |
| **RH** | NORMAL (PERCENT) | 30 | 58 | 55 | 47 | 45 | 51 | 54 | 52 | 55 | 60 | 60 | 59 | 58 | 55 |
| HOUR 00 LST | 30 | 65 | 62 | 54 | 53 | 60 | 63 | 58 | 62 | 68 | 70 | 69 | 65 | 62 |
| HOUR 06 LST | 30 | 72 | 71 | 65 | 67 | 75 | 78 | 73 | 77 | 80 | 80 | 76 | 72 | 74 |
| HOUR 12 LST | 30 | 47 | 44 | 35 | 33 | 38 | 42 | 42 | 44 | 49 | 47 | 45 | 46 | 43 |
| HOUR 18 LST | 30 | 42 | 36 | 28 | 27 | 31 | 34 | 35 | 38 | 43 | 44 | 45 | 44 | 37 |
| **S** | PERCENT POSSIBLE SUNSHINE | 20 | 66 | 69 | 72 | 78 | 78 | 81 | 81 | 77 | 77 | 72 | 74 | 65 | 74 |
| **W/O** | MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI) THUNDERSTORMS | 54  69 | 3.4  0.3 | 2.4  0.6 | 1.0  1.4 | 0.6  2.8 | 0.4  6.1 | 0.1  5.6 | 0.0  5.5 | 0.1  5.6 | 0.6  3.6 | 1.3  2.6 | 2.2  0.7 | 2.8  0.4 | 14.9  35.2 |
| **CLOUDINESS** | MEAN: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SUNRISE-SUNSET (OKTAS) | 48 | 4.2 | 4.1 | 3.8 | 3.7 | 3.8 | 3.2 | 3.5 | 3.4 | 3.4 | 3.0 | 3.4 | 3.8 | 3.6 |
| MIDNIGHT-MIDNIGHT (OKTAS) | 32 | 3.9 | 3.8 | 3.3 | 3.3 | 3.4 | 3.0 | 3.1 | 3.2 | 3.3 | 2.8 | 3.2 | 3.4 | 3.3 |
| MEAN NO. DAYS WITH: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CLEAR | 48 | 12.4 | 11.1 | 13.1 | 13.3 | 12.9 | 15.0 | 13.1 | 14.2 | 14.2 | 16.9 | 14.6 | 13.8 | 164.6 |
| PARTLY CLOUDY | 48 | 6.4 | 7.0 | 7.7 | 8.0 | 9.6 | 9.5 | 11.1 | 10.4 | 7.9 | 6.3 | 6.5 | 6.0 | 96.4 |
| CLOUDY | 48 | 12.2 | 10.1 | 10.2 | 8.7 | 8.5 | 5.5 | 6.8 | 6.3 | 8.0 | 7.7 | 8.9 | 11.2 | 104.1 |
| **PR** | MEAN STATION PRESSURE(IN) MEAN SEA-LEVEL PRES. (IN) | 34  34 | 27.13  30.09 | 27.08  30.02 | 27.03  29.93 | 26.98  29.86 | 26.98  29.82 | 27.00  29.82 | 27.06  29.89 | 27.07  29.90 | 27.08  29.93 | 27.08  29.97 | 27.11  30.04 | 27.12  30.07 | 27.06  29.95 |
| **WINDS** | MEAN SPEED (MPH) | 34  46  21  21 | 10.1  25  47  30  2017  60  30  2017 | 10.9  19  48  32  2013  60  33  2013 | 12.0  19  47  16  2017  60  28  2014 | 12.7  17  48  25  2014  61  32  2009 | 12.3  17  48  16  2010  59  16  2010 | 12.3  17  66  35  2007  93  36  2007 | 10.9  16  59  29  2009  72  28  2009 | 9.8  17  53  36  2017  64  23  1997 | 9.8  16  51  19  2001  70  20  2001 | 10.2  17  44  26  2010  54  01  2011 | 10.1  19  45  01  2011  54  01  2011 | 9.9  19  51  27  2009  63  26  2009 | 10.9  16  66  35  JUN 2007  93  36  JUN 2007 |
| PREVAIL.DIR(TENS OF DEGS) |
| MAXIMUM 2-MINUTE: |
| SPEED (MPH) |
| DIR. (TENS OF DEGS) |
| YEAR OF OCCURRENCE |
| MAXIMUM 3-SECOND |
| SPEED (MPH) |
| DIR. (TENS OF DEGS) |
| YEAR OF OCCURRENCE |
| **PRECIPITATION** | NORMAL (IN) | 30 | 0.56 | 0.71 | 0.60 | 0.65 | 1.74 | 1.80 | 1.82 | 1.84 | 1.86 | 1.73 | 0.69 | 0.60 | 14.60 |
| MAXIMUM MONTHLY (IN) | 70 | 3.66 | 2.55 | 2.86 | 2.85 | 7.63 | 3.97 | 8.50 | 5.92 | 9.70 | 7.45 | 5.42 | 3.30 | 9.70 |
| YEAR OF OCCURRENCE |  | 1949 | 1992 | 1970 | 1949 | 1992 | 2010 | 1991 | 2006 | 1980 | 1986 | 2004 | 1986 | SEP 1980 |
| MINIMUM MONTHLY (IN) | 70 | 0.00 | 0.00 | T | 0.00 | 0.02 | 0.00 | T | 0.03 | 0.00 | 0.00 | 0.00 | T | 0.00 |
| YEAR OF OCCURRENCE |  | 1967 | 1999 | 2013 | 1964 | 1998 | 2011 | 2011 | 2009 | 2000 | 1952 | 1950 | 2008 | JUN 2011 |
| MAXIMUM IN 24 HOURS (IN)  YEAR OF OCCURRENCE NORMAL NO. DAYS WITH: | 70 | 1.45  2015 | 1.32  1997 | 2.20  1970 | 1.62  1979 | 4.75  1968 | 3.07  1993 | 5.99  1961 | 2.72  2007 | 4.92  2012 | 3.59  1985 | 2.17  2004 | 1.13  2013 | 5.99  JUL 1961 |
| PRECIPITATION >= 0.01 | 30 | 3.6 | 3.8 | 3.6 | 2.9 | 5.6 | 4.8 | 4.9 | 5.7 | 5.4 | 4.9 | 3.0 | 3.7 | 51.9 |
| PRECIPITATION >= 1.00 | 30 | 0.0 | 0.1 | 0.0 | 0.1 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.2 | 0.0 | 3.3 |
| **SNOWFALL** | NORMAL (IN) | 30  69  63  67  30 | 2.0  10.6  2012  10.6  2012  7  2012  0.8 | 0.5  4.5  2010  4.4  2010  5  1985  0.2 | 0.2  5.9  1970  5.0  1970  3  1989  0.1 | 0.1  2.0  1996  2.0  1996  0  0.1 | 0.0  T 2007  T  1995  0  0.0 | 0.0  T 1993  T  1993  0  0.0 | 0.0  0.0  2011  T 1995  0  0.0 | 0.0  T 1992  T  1992  0  0.0 | 0.0  T 2001  T  2001  0  0.0 | 0.0  0.6  1993  0.6  1993  1  1993  0.0 | 0.5  8.0  2001  6.0  2001  8  2001  0.2 | 1.5  9.8  1998  9.8  1998  7  2015  0.5 | 4.8  10.6  JAN 2012  10.6  JAN 2012  8  NOV 2001  1.9 |
| MAXIMUM MONTHLY (IN) |
| YEAR OF OCCURRENCE |
| MAXIMUM IN 24 HOURS (IN) |
| YEAR OF OCCURRENCE' |
| MAXIMUM SNOW DEPTH (IN) |
| YEAR OF OCCURRENCE |
| NORMAL NO. DAYS WITH: |
| SNOWFALL >= 1.0 |

**PRECIPITATION (inches) 2017 MIDLAND (KMAF)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **YEAR** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **ANNUAL** |
| 1988 | 0.01 | 0.44 | 0.74 | 0.08 | 2.26 | 0.84 | 6.66 | 1.66 | 5.07 | T | T | 0.53 | 18.29 |
| 1989 | 0.25 | 1.28 | 0.34 | 0.05 | 0.95 | 0.61 | 0.34 | 1.19 | 2.78 | 0.17 | 0.04 | 0.14 | 8.14 |
| 1990 | 0.21 | 1.09 | 0.94 | 1.97 | 0.35 | 0.01 | 1.65 | 2.15 | 2.89 | 1.46 | 0.75 | 0.69 | 14.16 |
| 1991 | 1.80 | 0.25 | T | 0.01 | 0.54 | 3.50 | 8.50 | 1.58 | 3.76 | 0.58 | 0.71 | 2.23 | 23.46 |
| 1992 | 1.20 | 2.55 | 0.97 | 1.03 | 7.63 | 2.12 | 1.63 | 2.75 | 0.16 | 0.03 | 0.70 | 0.61 | 21.38 |
| 1993 | 1.28 | 0.82 | 0.26 | 0.57 | 1.45 | 3.11 | 0.89 | 4.37 | 2.11 | 1.11 | 0.06 | 0.34 | 16.37 |
| 1994 | 1.02 | 0.08 | T | 0.52 | 1.30 | 1.00 | 2.43 | 1.75 | 0.45 | 0.38 | 1.30 | 0.46 | 10.69 |
| 1995 | 0.72 | 0.46 | 0.19 | 0.40 | 2.51 | 1.45 | 2.28 | 0.34 | 1.77 | 0.34 | T | 0.24 | 10.70 |
| 1996 | 0.08 | T | 0.05 | 1.22 | 0.11 | 1.71 | .13 | 2.94 | .97 | .20 | 1.43 | T | 8.84 |
| 1997 | 0.21 | 1.69 | 0.26 | 2.02 | 0.73 | 3.27 | 2.26 | 2.41 | 0.86 | 1.60 | 0.44 | 1.35 | 17.10 |
| 1998 | 0.24 | 0.50 | 0.42 | 0.00 | 0.02 | 0.30 | 0.65 | 0.92 | 0.08 | 1.30 | 0.13 | 0.58 | 5.14 |
| 1999 | 0.33 | 0.00 | 1.22 | 0.19 | 1.10 | 2.87 | 0.61 | 0.05 | 0.95 | 0.28 | 0.00 | T | 7.60 |
| 2000 | 0.61 | T | 0.76 | 0.19 | 1.05 | 3.14 | 0.24 | 0.06 | 0.00 | 2.39 | 0.88 | 0.33 | 9.65 |
| 2001 | 0.69 | 1.24 | 0.78 | T | 1.14 | 0.01 | T | 3.44 | 0.95 | 0.03 | 1.47 | 0.10 | 9.85 |
| 2002 | 0.08 | 1.00 | 0.88 | 0.35 | 0.11 | 0.17 | 1.48 | 0.17 | 0.30 | 3.29 | 0.47 | 1.05 | 9.35 |
| 2003 | 0.27 | 0.72 | 0.17 | 0.02 | 3.14 | 1.99 | 1.14 | 1.91 | 0.86 | 0.79 | 0.14 | T | 11.15 |
| 2004 | 0.63 | 0.84 | 1.33 | 1.88 | 0.10 | 2.01 | 1.21 | 0.77 | 5.31 | 2.84 | 5.42 | 0.11 | 22.45 |
| 2005 | 0.41 | 1.51 | 0.45 | 0.01 | 1.73 | 0.92 | 2.52 | 2.61 | T | 3.74 | 0.01 | 0.07 | 13.98 |
| 2006 | 0.16 | 0.82 | 1.78 | 0.33 | 0.13 | 1.02 | 1.55 | 5.92 | 1.23 | 1.46 | T | 1.35 | 15.75 |
| 2007 | 1.18 | 0.14 | 2.18 | 1.63 | 5.27 | 2.63 | 2.34 | 3.17 | 1.25 | 0.16 | 0.72 | 0.60 | 21.27 |
| 2008 | 0.03 | 0.01 | 0.37 | 0.51 | 0.18 | 2.02 | 0.70 | 2.42 | 2.16 | 1.61 | T | T | 10.01 |
| 2009 | 0.04 | 0.22 | 0.56 | 0.29 | 0.45 | 2.33 | 6.55 | 0.03 | 2.44 | 0.96 | 0.04 | 0.83 | 14.74 |
| 2010 | 1.64 | 1.53 | 0.59 | 2.03 | 1.65 | 3.97 | 1.85 | 0.44 | 2.35 | T | 0.00 | 0.02 | 16.07 |
| 2011 | 0.02 | 0.05 | 0.04 | 0.00 | 0.05 | 0.00 | T | 0.45 | 1.59 | 1.46 | 0.18 | 1.63 | 5.47 |
| 2012 | 1.00 | 0.19 | 0.11 | 0.05 | 2.88 | 0.43 | 1.30 | 0.75 | 5.89 | 0.12 | T | 0.08 | 12.80 |
| 2013 | 1.45 | 0.08 | T | T | 0.03 | 0.85 | 0.98 | 1.18 | 0.27 | 1.66 | 0.57 | 1.44 | 8.51 |
| 2014 | 0.00 | 0.26 | 0.19 | 0.45 | 2.26 | 0.48 | 0.33 | 0.77 | 1.69 | T | 1.02 | 0.22 | 7.67 |
| 2015 | 2.43 | 0.26 | 1.65 | 1.30 | 3.35 | 3.29 | 0.72 | 1.01 | 1.77 | 4.00 | 1.61 | 1.24 | 22.63 |
| 2016 | 0.18 | 0.30 | 0.34 | 1.45 | 1.47 | 3.16 | 0.24 | 3.20 | 2.11 | 0.31 | 2.01 | 0.41 | 15.18 |
| 2017 | 1.12 | 0.72 | 0.48 | 2.48 | 0.89 | 3.05 | 1.48 | 2.52 | 4.07 | 0.13 | 0.40 | 0.39 | 17.73 |
| POR=  69 YRS | 0.58 | 0.60 | 0.52 | 0.78 | 1.87 | 1.63 | 1.71 | 1.67 | 2.00 | 1.52 | 0.64 | 0.53 | 14.05 |

**AVERAGE TEMPERATURE (°F) 2017 MIDLAND (KMAF)**

WBAN : 23023

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **YEAR** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **ANNUAL** |
| 1988 | 39.3 | 46.2 | 54.3 | 63.1 | 70.8 | 78.5 | 77.7 | 79.3 | 72.5 | 64.7 | 54.9 | 43.7 | 62.1 |
| 1989 | 45.9 | 43.3 | 56.9 | 66.8 | 76.9 | 78.7 | 83.1 | 80.5 | 71.7 | 65.2 | 53.6 | 38.7 | 63.4 |
| 1990 | 46.4 | 50.5 | 54.9 | 64.7 | 73.0 | 86.5 | 79.0 | 78.6 | 75.0 | 63.8 | 55.6 | 43.4 | 64.3 |
| 1991 | 41.7 | 50.6 | 56.9 | 65.9 | 76.6 | 79.5 | 79.2 | 77.6 | 69.9 | 64.6 | 47.7 | 45.8 | 63.0 |
| 1992 | 41.3 | 50.9 | 57.3 | 63.2 | 68.0 | 77.0 | 79.9 | 76.9 | 74.8 | 66.4 | 49.2 | 46.5 | 62.6 |
| 1993 | 43.4 | 47.1 | 54.6 | 63.3 | 71.2 | 78.9 | 83.5 | 81.1 | 71.9 | 61.9 | 49.5 | 46.9 | 62.8 |
| 1994 | 44.1 | 48.0 | 57.2 | 63.3 | 72.0 | 84.5 | 83.3 | 81.8 | 73.6 | 66.0 | 55.5 | 48.7 | 64.8 |
| 1995 | 45.9 | 51.8 | 54.5 | 64.0 | 71.8 | 78.1 | 83.0 | 81.8 | 73.9 | 66.6 | 54.8 | 46.4 | 64.4 |
| 1996 | 44.6 | 51.3 | 51.2 | 63.4 | 81.1 | 82.9 | 84.5 | 80.0 | 72.3 | 64.1 | 52.9 | 47.4 | 64.6 |
| 1997 | 41.4 | 44.8 | 57.9 | 59.1 | 70.8 | 77.9 | 82.8 | 81.9 | 77.0 | 65.0 | 50.2 | 42.0 | 62.6 |
| 1998 | 48.1 | 49.3 | 53.8 | 62.2 | 79.0 | 85.7 | 86.9 | 81.5 | 79.6 | 69.0 | 56.4 | 44.0 | 66.3 |
| 1999 | 48.0 | 54.8 | 55.9 | 65.0 | 73.8 | 79.3 | 82.6 | 84.3 | 75.0 | 63.9 | 56.5 | 45.1 | 65.4 |
| 2000 | 47.4 | 55.3 | 59.1 | 67.4 | 78.8 | 78.7 | 85.4 | 83.2 | 77.8 | 64.2 | 47.0 | 40.4 | 65.4 |
| 2001 | 41.5 | 48.5 | 51.9 | 66.9 | 75.9 | 83.8 | 86.7 | 82.0 | 75.1 | 65.9 | 54.3 | 44.7 | 64.8 |
| 2002 | 45.9 | 44.4 | 52.5 | 66.2 | 74.1 | 82.3 | 82.4 | 85.3 | 75.8 | 62.3 | 49.9 | 43.8 | 63.7 |
| 2003 | 44.3 | 46.5 | 57.0 | 67.1 | 76.0 | 79.1 | 82.7 | 83.3 | 75.1 | 67.3 | 55.2 | 46.8 | 65.0 |
| 2004 | 46.8 | 45.1 | 58.9 | 62.6 | 75.0 | 80.5 | 81.2 | 79.1 | 73.1 | 65.1 | 50.5 | 44.3 | 63.5 |
| 2005 | 48.0 | 47.7 | 52.9 | 62.6 | 71.6 | 81.3 | 81.6 | 78.8 | 77.9 | 63.8 | 54.4 | 44.6 | 63.8 |
| 2006 | 49.3 | 48.4 | 57.5 | 69.1 | 77.1 | 82.1 | 84.8 | 81.0 | 71.5 | 64.2 | 54.7 | 43.8 | 65.3 |
| 2007 | 38.7 | 48.3 | 58.2 | 60.5 | 68.4 | 77.2 | 78.7 | 80.3 | 76.9 | 68.5 | 53.9 | 46.0 | 63.0 |
| 2008 | 42.8 | 51.1 | 56.1 | 65.5 | 75.2 | 84.4 | 81.4 | 79.2 | 70.9 | 64.1 | 52.7 | 45.9 | 64.1 |
| 2009 | 44.9 | 52.8 | 58.6 | 66.1 | 74.6 | 82.2 | 82.5 | 82.5 | 72.6 | 62.5 | 54.4 | 41.1 | 64.6 |
| 2010 | 42.0 | 43.8 | 54.7 | 63.5 | 71.7 | 84.1 | 79.7 | 83.7 | 76.4 | 66.1 | 53.0 | 47.1 | 63.8 |
| 2011 | 42.5 | 45.7 | 61.9 | 71.6 | 75.2 | 88.0 | 87.0 | 87.8 | 76.6 | 66.9 | 54.4 | 41.9 | 66.6 |
| 2012 | 47.5 | 49.2 | 61.1 | 71.8 | 76.1 | 84.4 | 83.7 | 84.3 | 75.8 | 64.4 | 58.0 | 47.9 | 67.0 |
| 2013 | 44.6 | 48.4 | 58.2 | 64.5 | 74.3 | 83.6 | 81.5 | 84.2 | 77.6 | 66.3 | 51.1 | 43.3 | 64.8 |
| 2014 | 44.6 | 48.3 | 56.4 | 66.9 | 73.8 | 83.0 | 83.4 | 83.9 | 74.9 | 69.5 | 51.3 | 49.1 | 65.4 |
| 2015 | 41.7 | 46.8 | 54.7 | 66.2 | 71.6 | 79.8 | 84.7 | 84.6 | 79.8 | 67.6 | 54.8 | 47.8 | 65.0 |
| 2016 | 45.8 | 52.6 | 60.7 | 67.0 | 73.8 | 81.0 | 88.2 | 82.1 | 77.1 | 72.6 | 59.0 | 47.5 | 67.3 |
| 2017 | 47.8 | 57.2 | 64.5 | 67.8 | 73.8 | 84.0 | 84.2 | 81.0 | 77.3 | 66.4 | 59.3 | 46.1 | 67.5 |
| POR=  69 YRS | 43.8 | 48.2 | 55.7 | 64.6 | 73.0 | 80.4 | 82.2 | 81.3 | 74.6 | 65.0 | 52.9 | 45.3 | 63.9 |

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**HEATING DEGREE DAYS (base 65°F) 2017 MIDLAND (KMAF)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **YEAR** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **TOTAL** |
| 1988-89 | 0 | 0 | 10 | 54 | 321 | 654 | 586 | 601 | 279 | 102 | 2 | 0 | 2609 |
| 1989-90 | 0 | 0 | 36 | 98 | 341 | 806 | 569 | 401 | 324 | 105 | 58 | 0 | 2738 |
| 1990-91 | 0 | 0 | 2 | 101 | 295 | 662 | 715 | 398 | 260 | 47 | 8 | 0 | 2488 |
| 1991-92 | 0 | 0 | 47 | 107 | 513 | 587 | 728 | 404 | 235 | 113 | 29 | 0 | 2763 |
| 1992-93 | 0 | 0 | 1 | 32 | 475 | 564 | 665 | 494 | 322 | 118 | 16 | 0 | 2687 |
| 1993-94 | 0 | 3 | 10 | 185 | 457 | 556 | 639 | 468 | 265 | 117 | 18 | 0 | 2718 |
| 1994-95 | 0 | 0 | 3 | 80 | 284 | 500 | 586 | 363 | 343 | 119 | 8 | 0 | 2286 |
| 1995-96 | 0 | 0 | 29 | 45 | 301 | 573 | 626 | 410 | 423 | 139 | 0 | 0 | 2546 |
| 1996-97 | 0 | 0 | 25 | 101 | 358 | 538 | 726 | 560 | 232 | 206 | 22 | 0 | 2768 |
| 1997-98 | 0 | 0 | 3 | 119 | 437 | 704 | 518 | 434 | 367 | 129 | 0 | 0 | 2711 |
| 1998-99 | 0 | 0 | 0 | 48 | 259 | 644 | 522 | 282 | 285 | 104 | 9 | 0 | 2153 |
| 1999-00 | 0 | 0 | 16 | 106 | 250 | 610 | 542 | 274 | 195 | 83 | 13 | 0 | 2089 |
| 2000-01 | 0 | 0 | 12 | 127 | 535 | 755 | 720 | 455 | 399 | 56 | 0 | 0 | 3059 |
| 2001-02 | 0 | 0 | 5 | 51 | 329 | 619 | 586 | 572 | 394 | 94 | 8 | 0 | 2658 |
| 2002-03 | 0 | 0 | 0 | 160 | 449 | 652 | 634 | 512 | 252 | 56 | 10 | 0 | 2725 |
| 2003-04 | 0 | 0 | 0 | 41 | 318 | 556 | 556 | 570 | 229 | 113 | 22 | 0 | 2405 |
| 2004-05 | 1 | 0 | 1 | 46 | 431 | 632 | 521 | 478 | 371 | 116 | 49 | 0 | 2646 |
| 2005-06 | 0 | 0 | 3 | 121 | 325 | 625 | 478 | 459 | 243 | 34 | 5 | 0 | 2293 |
| 2006-07 | 0 | 0 | 5 | 104 | 305 | 655 | 805 | 463 | 231 | 175 | 33 | 0 | 2776 |
| 2007-08 | 0 | 0 | 0 | 70 | 335 | 589 | 681 | 399 | 301 | 92 | 13 | 0 | 2480 |
| 2008-09 | 0 | 0 | 1 | 101 | 368 | 583 | 613 | 347 | 231 | 97 | 0 | 0 | 2341 |
| 2009-10 | 0 | 0 | 13 | 162 | 313 | 733 | 705 | 587 | 322 | 110 | 30 | 0 | 2975 |
| 2010-11 | 0 | 0 | 0 | 32 | 355 | 549 | 690 | 536 | 152 | 20 | 27 | 0 | 2361 |
| 2011-12 | 0 | 0 | 3 | 74 | 315 | 709 | 535 | 454 | 186 | 20 | 9 | 0 | 2305 |
| 2012-13 | 0 | 0 | 11 | 123 | 225 | 525 | 625 | 461 | 238 | 127 | 41 | 0 | 2376 |
| 2013-14 | 0 | 0 | 0 | 79 | 418 | 665 | 624 | 462 | 282 | 79 | 27 | 0 | 2636 |
| 2014-15 | 0 | 0 | 14 | 24 | 410 | 485 | 713 | 504 | 338 | 64 | 13 | 0 | 2565 |
| 2015-16 | 0 | 0 | 0 | 45 | 307 | 526 | 587 | 365 | 161 | 54 | 28 | 0 | 2073 |
| 2016-17  2017- | 0  0 | 0  0 | 1  7 | 10  103 | 200  211 | 534  577 | 525 | 230 | 116 | 61 | 3 | 0 | 1680 |

WBAN : 23023

**COOLING DEGREE DAYS (base 65°F) 2017 MIDLAND (KMAF)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **YEAR** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **TOTAL** |
| 1988 | 0 | 0 | 13 | 51 | 198 | 414 | 397 | 452 | 242 | 52 | 22 | 0 | 1841 |
| 1989 | 0 | 0 | 36 | 164 | 376 | 416 | 569 | 487 | 244 | 111 | 4 | 0 | 2407 |
| 1990 | 0 | 0 | 15 | 103 | 312 | 651 | 441 | 428 | 310 | 68 | 19 | 0 | 2347 |
| 1991 | 0 | 1 | 17 | 80 | 374 | 440 | 447 | 399 | 200 | 101 | 0 | 0 | 2059 |
| 1992 | 0 | 0 | 1 | 68 | 131 | 367 | 468 | 377 | 303 | 83 | 4 | 0 | 1802 |
| 1993 | 0 | 0 | 6 | 75 | 213 | 422 | 579 | 510 | 224 | 95 | 0 | 0 | 2124 |
| 1994 | 0 | 0 | 27 | 74 | 240 | 594 | 576 | 526 | 271 | 118 | 7 | 0 | 2433 |
| 1995 | 0 | 0 | 26 | 94 | 227 | 398 | 566 | 529 | 302 | 97 | 3 | 0 | 2242 |
| 1996 | 0 | 18 | 6 | 98 | 510 | 546 | 611 | 471 | 252 | 77 | 4 | 0 | 2593 |
| 1997 | 2 | 0 | 18 | 35 | 211 | 395 | 557 | 531 | 373 | 125 | 0 | 0 | 2247 |
| 1998 | 0 | 0 | 27 | 52 | 441 | 626 | 684 | 519 | 444 | 178 | 6 | 1 | 2978 |
| 1999 | 0 | 5 | 8 | 111 | 289 | 436 | 553 | 604 | 320 | 77 | 3 | 0 | 2406 |
| 2000 | 0 | 2 | 18 | 162 | 446 | 418 | 640 | 570 | 404 | 110 | 0 | 0 | 2770 |
| 2001 | 0 | 0 | 1 | 118 | 348 | 566 | 674 | 533 | 313 | 88 | 18 | 0 | 2659 |
| 2002 | 0 | 2 | 14 | 135 | 296 | 521 | 546 | 636 | 329 | 84 | 3 | 0 | 2566 |
| 2003 | 0 | 0 | 12 | 128 | 354 | 428 | 553 | 575 | 306 | 122 | 31 | 0 | 2509 |
| 2004 | 0 | 0 | 46 | 47 | 338 | 471 | 508 | 444 | 251 | 57 | 0 | 0 | 2162 |
| 2005 | 0 | 0 | 0 | 52 | 261 | 497 | 522 | 437 | 397 | 93 | 13 | 0 | 2272 |
| 2006 | 0 | 0 | 18 | 164 | 388 | 517 | 621 | 506 | 205 | 85 | 1 | 0 | 2505 |
| 2007 | 0 | 3 | 29 | 47 | 145 | 376 | 434 | 479 | 361 | 184 | 12 | 5 | 2075 |
| 2008 | 0 | 2 | 32 | 115 | 336 | 590 | 513 | 448 | 184 | 78 | 6 | 0 | 2304 |
| 2009 | 0 | 11 | 38 | 135 | 304 | 525 | 548 | 550 | 246 | 89 | 1 | 0 | 2447 |
| 2010 | 0 | 0 | 10 | 73 | 247 | 580 | 465 | 587 | 347 | 74 | 2 | 0 | 2385 |
| 2011 | 0 | 3 | 63 | 226 | 354 | 699 | 689 | 714 | 359 | 145 | 7 | 0 | 3259 |
| 2012 | 0 | 3 | 74 | 228 | 360 | 591 | 584 | 607 | 342 | 111 | 21 | 0 | 2921 |
| 2013 | 0 | 0 | 35 | 119 | 334 | 564 | 519 | 605 | 384 | 125 | 7 | 0 | 2692 |
| 2014 | 0 | 2 | 23 | 144 | 307 | 548 | 578 | 595 | 320 | 170 | 5 | 0 | 2692 |
| 2015 | 0 | 1 | 26 | 107 | 224 | 449 | 620 | 617 | 455 | 134 | 9 | 0 | 2642 |
| 2016 | 0 | 15 | 35 | 123 | 307 | 486 | 726 | 540 | 369 | 253 | 26 | 0 | 2880 |
| 2017 | 0 | 17 | 108 | 151 | 285 | 578 | 605 | 503 | 382 | 152 | 47 | 1 | 2829 |

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**SNOWFALL (inches) 2017 MIDLAND (KMAF)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **YEAR** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **TOTAL** |
| 1989-90 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 1.0 |
| 1990-91 | 0.0 | 0.0 | 0.0 | 0.0 | T | 0.2 | 5.8 | T | 0.0 | 0.0 | 0.0 | T | 6.0 |
| 1991-92 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | T | 5.8 | 2.1 | T | 0.0 | T | T | 8.0 |
| 1992-93 | 0.0 | T | 0.0 | 0.0 | T | 4.2 | T | T | T | 0.0 | 0.0 | T | 4.2 |
| 1993-94 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.9 | 5.5 | T | T | T | T | 0.0 | 7.0 |
| 1994-95  1995-96  1996-97  1997-98 | 0.0  T 0.0  0.0 | 0.0  0.0  0.0  T | 0.0  0.0  0.0  0.0 | 0.0  0.0  0.0 | 0.0  0.0  .2  T | 0.0  T T 3.0 | 2.1  0.6  4.5  T | 0.0  0.2  1.0  0.0 | T 0.2  0.0  T | 0.0  2.0  0.0  0.0 | T  0.0  0.0 | 0.0  0.0  0.0  T | 2.1  3.0 |
| 1998-99 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 |
| 1999-00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | T | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| 2000-01 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.3 | 2.2 | T | 0.0 | 0.0 | T | 0.0 | 3.7 |
| 2001-02  2002-03  2003-04 | 0.0  T | 0.0  0.0 | T 0.0 | 0.0  0.0 | 8.0  0.0 | T T | 0.8  0.0 | T  0.3 | T  0.0 | 0.0  0.0 | 0.0  0.0 | 0.0  0.0 | 8.8 |
| 2004-05 | 0.0 | 0.0 | 0.0 | 0.0 | T | 0.3 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 |
| 2005-06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 |
| 2006-07 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 4.0 | 0.3 | 0.0 | 1.5 | T | 0.0 | 6.0 |
| 2007-08 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 0.0 | T | 0.0 | T | 0.0 | 0.0 | 0.0 | 6.2 |
| 2008-09 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | T | T | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | T |
| 2009-10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.3 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 |
| 2010-11 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 |
| 2011-12 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.9 | 10.6 | T | 0.0 | 0.0 | 0.0 | 0.0 | 19.5 |
| 2012-13  2013- | 0.0  0.0 | 0.0  0.0 | 0.0  0.0 | 0.0  0.0 | 0.0  0.1 | 0.0  T | 1.0 | T | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| 2013-14 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | T | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 |
| 2014-15 | 0.0 | 0.0 | 0.0 | 0.0 | T | 0.1 | 2.4 | 1.1 | T | 0.0 | 0.0 | 0.0 | 3.6 |
| 2015-16 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 |
| 2016-17  2017- | 0.0  0.0 | 0.0  0.0 | 0.0  0.0 | 0.0  0.0 | 0.0  0.0 | 0.3  T | T | 0.0 | T | 0.0 | 0.0 | 0.0 | 0.3 |
| POR=  70 YRS | T | T | T | 0.0 | 0.5 | 1.1 | 1.6 | 0.7 | 0.3 | 0.1 | T | T | 4.3 |

**REFERENCE NOTES :**

PAGE 1:

PRECIPITATION, INCLUDING HAIL.

WBAN : 23023

THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE

ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS). PAGE 2 AND 3:

H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY

W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE.

PR INDICATES PRESSURE.

CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS). GENERAL:

T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE.

+ INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH.

POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING.

WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS,

THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED.

0.\* OR \* INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05.

CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET

CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS.

GENERAL CONTINUED:

WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH.

RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION.

AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2.

SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN

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A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F.

DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR.

DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY.

WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.

ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.

STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED

SATION HISTORY INFORMATION GO TO "Historical Observing Metadata Repository", URL IS:

<http://www.ncdc.noaa.gov/homr/>

SNOWFALL STOPPED MONTH & YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.

**NOTE:**

The "Period of Record:(POR)" for all "averages" is based on "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.

6 WBAN : 23023

# 2017

**MIDLAND TEXAS (KMAF)**

The Midland-Odessa region is on the southern extension of the South Plains of Texas. The terrain is level with only slight occasional undulations.

The climate is typical of a semi-arid region. The vegetation of the area consists mostly of native grasses and a few trees, mostly of the mesquite variety.

Most of the annual precipitation in the area comes as a result of very violent spring and early summer thunderstorms. These are usually accompanied by excessive rainfall, over limited areas, and sometimes hail. Due to the flat nature of the countryside, local flooding occurs, but is of short duration. Tornadoes are occasionally sighted.

During the late winter and early spring months, blowing dust occurs frequently. The flat plains of the area with only grass as vegetation offer little resistance to the strong winds. The sky is occasionally obscured by dust but in most storms visibilities range from l to 3 miles.

Daytime temperatures are quite hot in the summer, but there is a large diurnal range of temperature and most nights are comfortable. The temperature drops below 32 degrees in the fall about mid- November and the last temperature below 32 degrees in spring comes early in April.

Winters are characterized by frequent cold periods followed by rapid warming. Cold frontal passages are followed by chilly weather for two or three days. Cloudiness is at a minimum. Summers are hot and dry with numerous small convective showers.

The prevailing wind direction in this area is from the southeast. This, together with the upslope of the terrain from the same direction, causes occasional low cloudiness and drizzle during winter and spring months. Snow is infrequent. Maximum temperatures during the summer months frequently are from 2 to 6 degrees cooler than those at places l00 miles southeast, due to the cooling effect of the upslope winds.

Very low humidities are conducive to personal comfort, because even though summer afternoon temperatures are frequently above 90 degrees, the low humidity with resultant rapid evaporation, has a cooling effect. The climate of the area is generally quite pleasant with the most disagreeable weather concentrated in the late winter and spring months.

7

## Station History MIDLAND, TX

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NAME | Begin Date | End Date | Latitude | | Longitude | | Elevation Feet | Relocation | Platform |
| MIDLAND/MIDLAND REG. AIRTERM | 1930-01-01 | 2015-12-31 | 31° | 56' | -102° | 11' | 2870.4 |  | UPPERAIR,BALLOON |
| MIDLAND AIR TERMINAL | 1948-02-01 | 1953-11-14 | 31° | 55' | -102° | 12' | 2858 |  | AIRWAYS |
| MIDLAND ODESSA REGIONAL AP | 1972-04-24 | 1973-01-01 | 31° | 57' | -102° | 10' | 2862 |  | AIRWAYS,COOP |
| MIDLAND INTERNATIONAL AP | 2006-06-05 | 2011-11-05 | 31° | 56' | -102° | 11' | 2862 |  | ASOS,COOP,WXSVC |
| MIDLAND SLOAN FIELD | 1930-06-01 | 1934-12-31 | 31° | 55' | -102° | 12' |  |  | MILITARY |
| MIDLAND AIR TERMINAL | 1953-11-14 | 1954-01-01 | 31° | 55' | -102° | 12' | 2858 | 14 MI WSW | AIRWAYS,COOP |
| MIDLAND GULF OIL PUMP STN | 1946-11-30 | 1948-02-01 | 31° | 55' | -102° | 12' |  |  | AIRWAYS |
| MIDLAND REGIONAL AIR TERMINAL | 1974-07-01 | 1996-03-01 | 31° | 57' | -102° | 10' | 2862 |  | COOP,WXSVC |
| MIDLAND SLOAN FIELD | 1940-04-01 | 1942-02-28 | 31° | 55' | -102° | 12' |  |  | MILITARY |
| MIDLAND AFB | 1942-02-28 | 1944-11-01 | 31° | 55' | -102° | 12' |  |  | MILITARY |
| MIDLAND ODESSA REGIONAL AP | 1967-02-15 | 1972-01-01 | 31° | 55' | -102° | 12' | 2871 |  | AIRWAYS,COOP |
| MIDLAND ODESSA REGIONAL AP | 1972-01-01 | 1972-04-24 | 31° | 57' | -102° | 10' | 2871 |  | AIRWAYS,COOP |
| MIDLAND INTERNATIONAL AP | 1996-08-29 | 2006-06-05 | 31° | 56' | -102° | 11' | 2862 |  | ASOS,COOP,WXSVC |
| MIDLAND AIR TERMINAL | 1960-01-01 | 1967-02-15 | 31° | 55' | -102° | 12' | 2871 |  | AIRWAYS,COOP |
| MIDLAND INTERNATIONAL AP | 2011-11-05 | Present | 31° | 56' | -102° | 12' | 2862 |  | ASOS,COOP,WXSVC |
| MIDLAND BANKHEAD HWY | 1935-10-01 | 1936-08-31 | 31° | 55' | -102° | 12' |  |  | MILITARY |
| MIDLAND AFB | 1944-11-01 | 1946-03-01 | 31° | 55' | -102° | 12' |  |  | AIRWAYS,MILITARY |
| MIDLAND GULF OIL PUMP STN | 1946-03-01 | 1946-11-30 | 31° | 55' | -102° | 12' |  |  | AIRWAYS,MILITARY |
| MIDLAND SLOAN FIELD | 1937-01-01 | 1939-12-31 | 31° | 55' | -102° | 12' |  |  | MILITARY |
| MIDLAND AIR TERMINAL | 1954-01-01 | 1960-01-01 | 31° | 55' | -102° | 12' | 2858 |  | AIRWAYS,COOP |
| MIDLAND ODESSA REGIONAL AP | 1973-01-01 | 1974-07-01 | 31° | 57' | -102° | 10' | 2862 |  | COOP,WXSVC |

MIDLAND INTERNATIONAL AP 1996-03-01 1996-08-29 31° 56' -102° 11' 2862 1 MI N ASOS,COOP,WXSVC

## Element History

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Element | Begin | End | Frequency | Time Of | Equipment \* | Equipment \* | Equipment |
|  | Date | Date |  | Observation |  | Modifications | Exposure |

\* For explanation of codes and abbrevitions see Station Metadata link below.

Other Station Information can be found at:

[ASOS Implementation by NWS: http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm](http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm) Station Metadata website: <http://www.ncdc.noaa.gov/homr>

INQUIRES/COMMENTS CALL: (828) 271-4800, option 2

Fax Number : (828) 271-4876

TDD : (828) 271-4010

[Email : ncdc.orders@noaa.gov](mailto:ncdc.orders@noaa.gov)

NOAA/National Centers for Environmental Information Attn: User Engagement & Services Branch

151 Patton Avenue Asheville, NC 28801-5001

[Visit our Web Site for other weather data: www.ncdc.noaa.gov](http://www.ncdc.noaa.gov/)

# INTRODUCTION TO REM/RATE SOFTWARE PROGRAM

**INTRODUCTION TO REM/RATE**TM **SOFTWARE PROGRAM**

1. **REM/Rate**TM **Software Design Objective**

REM/Rate – Residential Energy Analysis and Rating Software Program is a sophisticated, residential energy analysis, code compliance and rating software program. REM/Rate calculates heating, cooling, hot water, lighting, and appliance energy loads, consumption and costs for new and existing single and multi-family homes.

REM/Rate operates in Windows and has many unique features, including a simplified input procedure, extensive component libraries, automated energy efficient improvement analysis, duct conduction and leakage analysis, latent and sensible cooling analysis, lighting and appliance audit, and active and passive solar analysis.

A home energy rating is calculated based on the proposed Department of Energy (DOE) Home Energy Rating System (HERS) guidelines (10 CFR 437) as modified by the RESNET/NASEO (Residential Energy Service Network/National Association of State Energy Officials) HERS Technical Committee. REM/Rate also creates value added information including energy appraisal addendum, energy code compliance (Model Energy Code (MEC) and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)), improvement analysis (existing homes), design optimization (new homes), heating and cooling equipment sizing and U.S. Environmental Protection Agency (EPA) Energy Star Home analysis.

1. **Use of REM/Rate in Utility Allowance Development**

REM/Rate utilizes an Engineering approach to calculate the consumption allowance for various types of new and existing homes. The REM/Rate software program is recognized and approved by EPA, DOE and HUD.

The Nelrod Company is accredited and licensed by HERS/RESNET and a certified and licensed REM/Rate provider and user. We have successfully conducted energy home rating and energy audits using this software for over 31,550 reports. The information from our past experience and these reports is used to develop models for the most common building types and bedroom sizes, which in turn are utilized in developing average monthly utility allowances.

1. **Basic Procedures**

The data needed for this program is collected either from the building/site plans provided and/or from a site visit. Building type models are developed for the most common building types (Single-Family Detached House, Semi-Detached/Duplex, Row/Townhouse, Multi-Family Walk-Up, and Manufactured Homes) and bedroom sizes. The program calculates heating, cooling, hot water, lighting and appliances

energy load, consumption and cost based on home’s design and construction

features as well as climate and energy cost data.

The calculations are conducted following the Residential Energy Services Network (RESNET) Home Energy Rating System (HERS) technical guidelines, developed in cooperation with, US DOE, US Department of Veterans Affairs (USVA), HUD, and the National Association of State Energy Officials (NASEO) as the rating system used to determine energy usage in new and existing construction. The guidelines were established as the only national standard for determining energy savings based on construction types and local (community-wide) geographical locations. It estimates the annual energy quantity a home will require and the cost of that energy based on local utility rates. The guidelines make assumptions about the size and lifestyle of the family who will occupy the home. These assumptions are based on nationally accepted standards developed by the US DOE, American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and US EPA. Such assumptions include occupancy rates of 2 persons for the first bedroom and one additional person for each additional bedroom; thermostat setting of 68 Fahrenheit for heating and 78 Fahrenheit for cooling, which is the recommended setting for an energy conserving household. To determine water heater energy usage, tap water temperatures are adjusted for local geographical locations and 120 thermostat settings are used, which is considered energy conservative. In addition, architectural components are considered such as square footages, number of stories, insulation R-values, wall materials, mechanical equipment types and efficiencies.

The REM/Rate software utilizes default standards based on national trends. (See details following this introduction.) If there are no local surveys available regarding residential lifestyles, a residential rental market study can be conducted to gather data on the most common household amenities, such as, dishwashers, clothes washers and dryers, microwaves, and size of refrigerators.

Additionally, the Agency can provide architectural characteristics concerning common foundation types, exterior siding, and other structure features for their area. This information will be used to further adjust the building type models.

1. **Input Values and Determination**

REM/Rate provides two levels of inputs: simplified and detailed. Simplified inputs use general design characteristics and built–in algorithms to determine the results. We use detailed inputs which provide the user greater control over calculational values and development of common building type models.

The various input parameters are as follows:

* + Location – List of US and Canadian locations;
  + Energy costs – create or modify various utility rates based on the existing market;
  + Building Component data – Foundation type, Opaque wall constructional details, window/skylights conduction and solar gain values, type of ceilings and doors, heating equipment, cooling equipment, water heating equipment, various types of lights and appliances used.

These values are determined either from verified conditions/site visits or from the building plans. A Certified IECC (International Energy Conservation Code) Inspector/HERS/RESNET (Home Energy Rating Systems/Residential Energy Services Network) Rater inputs characteristics from building plans and/or from documentation gathered from an on-site inspection of the physical, structural and mechanical details. We use the criteria from our past experience to develop models for common building types and bedroom sizes.

Climate data is available for cities and towns throughout North America. This data is updated periodically with new versions of the REM/Rate software program.

Extensive utility libraries can be created and maintained for specific utility provider rates and charges and are available to apply to consumption data to determine local utility allowances.

1. **Output Values, Interpretation and Use for Utility Allowances**

Fifty-six preformatted reports are available for viewing on screen or printing. Reports include energy use, energy cost, design loads, rating, quick report, improvement analysis, code compliance, and economic analysis of energy upgrades.

Reports are generated from the building type models in the REM/Rate software program and analyzed for consumption usage totals by energy end-use categories. (Fuel Summary and Lights & Appliance Summary.)

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# REM/RATE SOFTWARE DEFAULT AUDIT

**REM/Rate Software Default Audit**

**Lighting and Appliance Algorithms**

REM/Rate Software uses the energy consumption of basic home appliances for the Default Loads. The appliances for the **Default Loads** are:

***Lighting (permanent and non-permanent) Plug Loads***

***Refrigerator/Freezer Clothes Washer Clothes Dryer Oven/Range***

The consumption in MMBtu is dependent on what the days of the heating and cooling seasons are.

Number of Occupants based on HUD’s occupancy standards, and HUD’s Keating

Memo.

Lighting (Watt h / Day) = [HRc + (Area/HRarea) + (HRocc x Occupants)] x Watts / Fixture Where:

|  |  |
| --- | --- |
| **HRc** | constant number of fixture (or bulb) hours |
| **HRarea** | number of square feet per fixture (or bulb) hours |
| **HRocc** | number of fixture (or bulb) hours per occupant |
| **Area** | conditioned area |
| **Occupants** | number of occupants in the structure |

**Permanently Installed Lighting:**

|  |  |  |
| --- | --- | --- |
|  | Heating Season | Cooling Season |
| **HRc** | 8 | 7 |
| **HRarea** | 500 | 800 |
| **HRocc** | 2 | 1 |
| **Watts/Fixture Incandescent** | 100 | 100 |
| **Watts/Fixture Fluorescent** | 30 | 30 |

**Non-Permanently Installed Lighting:**

|  |  |  |
| --- | --- | --- |
|  | Heating Season | Cooling Season |
| **HRc** | 14 | 10 |
| **HRarea** | 350 | 600 |
| **HRocc** | 2.5 | 1 |
| **Watts/Fixture Incandescent** | 70 | 70 |
| **Watts/Fixture Fluorescent** | 25 | 25 |

**Appliance Load**

***Lighting:*** The lighting usage is described in terms of fixture-hours and bulb-hours, (e.g. three fixture hours would be present if one fixture is on for 3 hours, or 3 fixtures are on for one hour). The lighting usage can then be determined by multiplying the number of lamp hours by the wattage per lamp, which would be determined by the percentage of fluorescent lamps.

Three terms exist in the determination of the number of fixture hours: a constant, a ratio by area, and a ratio by number of occupants (e.g. bedrooms). HRc fixture hours/day are assumed as a base load. Added to this is one fixture hour/day for every HRarea square foot of conditioned area, and HRocc fixture hours/day for each occupant (four non-permanently installed lights, substitute bulb hours in place of fixture hours.)

100 watts/fixture is assumed for the average permanently installed incandescent fixture, and 30 watts/fixture for the average permanently installed fluorescent fixture. The actual wattage assumed is ratioed by the percentage of fluorescent fixtures. If no information is input, a ratio of 10% fluorescent fixtures is assumed.

70 watts/bulb is assumed for the average non-permanently installed incandescent bulb, and 25 watts/bulb for the average non-permanently installed fluorescent bulb. Again, the actual wattage is dependent upon the percentage of fluorescent bulbs, and a value of 10% is used if no information is input on non-permanently installed lighting.

***Refrigerator:*** Vary refrigerators’ consumption by year, type and size, based on the data provided by VEIC. The load due to year shall be interpolated, and the load due to size shall stay in the batch mode, (e.g. the program will pick which data to use by type and size, and then interpolate the data for the year).

***Range/Oven:***

Electric: 1.5 kwh/day (550 kwh/yr)

Gas: 12,000 Btu/day (4.4 MMBtu/yr)

***Clothes Washer:***

30 kwh/yr/person

***Clothes Dryer:***

Electric: 300 kwh/yr/person = 2 people for 1st bedroom + 1 for each additional = 3.5 persons x 25 kwh = 87.50 kwh

Gas 1.5 MMBtu/yr/person + 35 kwh (Electric)/yr/person

***Plug Loads:*** 1.25 kwh/day + 1.75 kwh/day/person

***Detailed Audit***

REM/Rate also allows the user to enter the details of the Lights and Appliances by choosing the Perform Detailed Audit ratio button. By selecting this option, the user can enter the exact internal loads of the residential building.

The following table describes a detailed audit performed on the REM example building:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Type** | **Location** | **Qty** | **Fuel** | **Use** | **Efficiency** |
| Ceiling Fan | Miscellaneous | Conditioned Area | 1 | Electricity | 220.0  kwh/ Year | Standard |
| Dishwasher | Dishwasher | Conditioned Area | 1 | Electricity | 290.0  kwh/ Year | Standard |
| Clothes Dryer | Clothes Dryer | Conditioned Area | 1 | Electricity | 880.0  kwh/ Year | Standard |
| Lights | Light Fixture(s) | Conditioned Area | 1 | Electricity | 940.0  kwh/ Year | Standard |
| Microwave | Microwave | Conditioned Area | 1 | Electricity | 190.0  kwh/ Year | Standard |
| Plug Loads | Plug Load(s) | Conditioned Area | 1 | Electricity | 500.0  kwh/ Year | Standard |
| Range/Oven | Range/Oven | Conditioned Area | 1 | Electricity | 450.0  kwh/ Year | Standard |
| Refrigerator | Refrigerator | Conditioned Area | 1 | Electricity | 1150.0  kwh/ Year | Standard |
| Television | Miscellaneous | Conditioned Area | 1 | Electricity | 720.0  kwh/ Year | Standard |
| Washer | Clothes Washer | Conditioned Area | 1 | Electricity | 100.0  kwh/ Year | Standard |
| Washer | Clothes Washer | Conditioned Area | 1 | Water | 5.0  gallons/ Week | Standard |
| Shower | Shower/Bath | Conditioned Area | 1 | Water | 10.0  gallons/ Day | Standard |

***Internal Gains in (Rating) Load:***

The internal gains will include all of the heat from the refrigerator, the oven/range, the clothes washer, and the plug loads. Heat from the dryer is assumed to be vented out of the conditioned space.

***Domestic Hot Water (DHW)***

The assumption currently used for DHW is 30 gallons + 10 gallons/occupant, and will not be changed with the presence or absence of dish or clothes washers. Reasons for this include: the 30 gallons + 10 gallons/occupant average includes the averaged use of dishwashers and clothes washers. People will use some water to wash dishes if they do not have a dishwasher, but it is not clear whether the amount of water they use could approach the amount used by a dishwasher. A clothes washer is assumed to exist, as 75 percent of all households contain a clothes washer. Therefore, no adjustment is needed.

**REM/Rate Internal Gains Data**

Daily internal gains (Btu/day) are assumed to be:

|  |  |  |
| --- | --- | --- |
|  | **Heating** | **Cooling** |
| Lighting | 2,100/occ | 1,200/occ |
| Appliance | 3,000/occ + 15,000 | 3,000/occ + 15,000 |
| Occupant | 4,800/occ | 4,800/occ |
| Total (Btu/day) | 9,900/occ + 15,000 | 9,900/occ + 15,000 |
| (Btu/hr) | 413/occ + 625 | 375/occ + 625 |

If the DHW type is Heat Pump, the internal gains are further adjusted:

|  |  |  |
| --- | --- | --- |
|  | **Heating** | **Cooling** |
| Heat Pump DHW | 7,000/occ | 8,000/occ |

The number of occupants is assumed to be equal to the number of bedrooms in the home.

The REM method assumes that the gains are constant over the day and thus half occur during the daytime, coincident with the solar gains, and half at night when no solar gains are present. The internal gains during these two time periods are treated separately when the heating and cooling loads are calculated.

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# PUBLIC HOUSING HUD REGULATIONS 24 CFR 965. SUBPART E RESIDENT ALLOWANCES FOR UTILITIES

**TITLE 24--HOUSING AND URBAN DEVELOPMENT**

**CHAPTER IX OFFICE OF ASSISTANT SECRETARY FOR PUBLIC AND INDIAN HOUSING, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**

**PART 965: PHA-OWNED OR LEASED PROJECTS GENERAL PROVISIONS**

**Subpart E**--**Resident Allowances for Utilities**

Source: 61 FR 7971, Feb. 29, 1996, unless otherwise noted.

**Sec. 965.501 Applicability.**

1. This subpart E applies to public housing, including the Turnkey III Homeownership Opportunities program. This subpart E also applies to units assisted under sections 10(c) and 23 of the U. S. Housing Act of 1937 (42 U.S.C. 1437 et seq.) as in effect before amendment by the Housing and Community Development Act of 1974 (12

U.S.C. 1706e) and to which 24 CFR part 900 is not applicable. This subpart E does not apply to Indian housing projects (see 24 CFR part 950).

1. In rental units for which utilities are furnished by the PHA but there are no check- meters to measure the actual utilities consumption of the individual units, residents shall be subject to charges for consumption by resident-owned major appliances, or for optional functions of PHA-furnished equipment, in accordance with Sec. 965.502(e) and 965.506(b), but no utility allowance will be established.

**Sec. 965.502 Establishment of utility allowances by PHAs.**

1. PHAs shall establish allowances for PHA-furnished utilities for all check-metered utilities and allowances for resident-purchased utilities for all utilities purchased directly by residents from the utilities suppliers.
2. The PHA shall maintain a record that documents the basis on which allowances and scheduled surcharges, and revisions thereof, are established and revised. Such record shall be available for inspection by residents.
3. The PHA shall give notice to all residents of proposed allowances, scheduled surcharges, and revisions thereof. Such notice shall be given, in the manner provided in the lease or homebuyer agreement, not less than 60 days before the proposed effective date of the allowances or scheduled surcharges or revisions; shall describe with reasonable particularity the basis for determination of the allowances, scheduled surcharges, or revisions, including a statement of the specific items of equipment and function whose utility consumption requirements were included in determining the amounts of the allowances or scheduled surcharges; shall notify residents of the place where the PHA's record maintained in accordance with paragraph (b) of this section is available for inspection; and shall provide all residents an opportunity to submit written comments during a period expiring not less than 30 days before the proposed effective date of the allowances or scheduled surcharges or revisions. Such written comments shall be retained by the PHA and shall be available for inspection by residents.
4. Schedules of allowances and scheduled surcharges shall not be subject to approval by HUD before becoming effective, but will be reviewed in the course of audits or reviews of PHA operations.
5. The PHA's determinations of allowances, scheduled surcharges, and revisions thereof shall be final and valid unless found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law.

**Sec. 965.503 Categories for establishment of allowances.**

Separate allowances shall be established for each utility and for each category of dwelling units determined by the PHA to be reasonably comparable as to factors affecting utility usage.

**Sec. 965.504 Period for which allowances are established.**

1. PHA-furnished utilities. Allowances will normally be established on a quarterly basis; however, residents may be surcharged on a monthly basis. The allowances established may provide for seasonal variations.
2. Resident-purchased utilities. Monthly allowances shall be established. The allowances established may provide for seasonal variations.

**Sec. 965.505 Standards for allowances for utilities.**

1. The objective of a PHA in designing methods of establishing utility allowances for each dwelling unit category and unit size shall be to approximate a reasonable consumption of utilities by an energy-conservative household of modest circumstances consistent with the requirements of a safe, sanitary, and healthful living environment.
2. Allowances for both PHA-furnished and resident-purchased utilities shall be designed to include such reasonable consumption for major equipment or for utility functions furnished by the PHA for all residents (e.g., heating furnace, hot water heater), for essential equipment whether or not furnished by the PHA (e.g., range and refrigerator), and for minor items of equipment (such as toasters and radios) furnished by residents.
3. The complexity and elaborateness of the methods chosen by the PHA, in its discretion, to achieve the foregoing objective will depend upon the nature of the housing stock, data available to the PHA and the extent of the administrative resources reasonably available to the PHA to be devoted to the collection of such data, the formulation of methods of calculation, and actual calculation and monitoring of the allowances.
4. In establishing allowances, the PHA shall take into account relevant factors affecting consumption requirements, including:
5. The equipment and functions intended to be covered by the allowance for which the utility will be used. For instance, natural gas may be used for cooking, heating domestic water, or space heating, or any combination of the three;
6. The climatic location of the housing projects;
7. The size of the dwelling units and the number of occupants per dwelling unit;
8. Type of construction and design of the housing project;
9. The energy efficiency of PHA-supplied appliances and equipment;
10. The utility consumption requirements of appliances and equipment whose reasonable consumption is intended to be covered by the total resident payment;
11. The physical condition, including insulation and weatherization, of the housing project;
12. Temperature levels intended to be maintained in the unit during the day and at night, and in cold and warm weather; and
13. Temperature of domestic hot water.
14. If a PHA installs air conditioning, it shall provide, to the maximum extent economically feasible, systems that give residents the option of choosing to use air conditioning in their units. The design of systems that offer each resident the option to choose air conditioning shall include retail meters or check-meters, and residents shall pay for the energy used in its operation. For systems that offer residents the option to choose air conditioning, the PHA shall not include air conditioning in the utility allowances. For systems that offer residents the option to choose air conditioning but cannot be check-metered, residents are to be surcharged in accordance with Sec.

965.506. If an air conditioning system does not provide for resident option, residents are not to be charged, and these systems should be avoided whenever possible.

**Sec. 965.506 Surcharges for excess consumption of PHA-furnished utilities.**

1. For dwelling units subject to allowances for PHA-furnished utilities where check- meters have been installed, the PHA shall establish surcharges for utility consumption in excess of the allowances. Surcharges may be computed on a straight per unit of purchase basis (e.g., cents per kilowatt hour of electricity) or for stated blocks of excess consumption, and shall be based on the PHA's average utility rate. The basis for calculating such surcharges shall be described in the PHA's schedule of allowances. Changes in the dollar amounts of surcharges based directly on changes in the PHA's average utility rate shall not be subject to the advance notice requirements of this section.
2. For dwelling units served by PHA-furnished utilities where Check-meters have not been installed, the PHA shall establish schedules of surcharges indicating additional dollar amounts residents will be required to pay by reason of estimated utility consumption attributable to resident-owned major appliances or to optional functions of PHA-furnished equipment. Such surcharge schedules shall state the resident-owned equipment (or functions of PHA-furnished equipment) for which surcharges shall be made and the amounts of such charges, which shall be based on the cost to the PHA of the utility consumption estimated to be attributable to reasonable usage of such equipment.

**Sec. 965.507 Review and revision of allowances**.

1. Annual review. The PHA shall review at least annually the basis on which utility allowances have been established and, if reasonably required in order to continue

adherence to the standards stated in Sec. 965.505, shall establish revised allowances. The review shall include all changes in circumstances (including completion of modernization and/or other energy conservation measures implemented by the PHA) indicating probability of a significant change in reasonable consumption requirements and changes in utility rates.

1. Revision as a result of rate changes. The PHA may revise its allowances for resident-purchased utilities between annual reviews if there is a rate change (including fuel adjustments) and shall be required to do so if such change, by itself or together with prior rate changes not adjusted for, results in a change of 10 percent or more from the rates on which such allowances were based. Adjustments to resident payments as a result of such changes shall be retroactive to the first day of the month following the month in which the last rate change taken into account in such revision became effective. Such rate changes shall not be subject to the 60 day notice requirement of Sec. 965.502(c).

**Sec. 965.508 Individual relief.**

Requests for relief from surcharges for excess consumption of PHA-purchased utilities, or from payment of utility supplier billings in excess of the allowances for resident-purchased utilities, may be granted by the PHA on reasonable grounds, such as special needs of elderly, ill or disabled residents, or special factors affecting utility usage not within the control of the resident, as the PHA shall deem appropriate. The PHA's criteria for granting such relief, and procedures for requesting such relief, shall be adopted at the time the PHA adopts the methods and procedures for determining utility allowances. Notice of the availability of such procedures (including identification of the PHA representative with whom initial contact may be made by residents), and the PHA's criteria for granting such relief, shall be included in each notice to residents given in accordance with Sec. 965.502(c) and in the information given to new residents upon admission.

**SAMPLE NOTICE**

HOUSING AUTHORITY OF THE CITY OF NOTICE OF PROPOSED UTILITLY ALLOWANCES

DATE:

TO: ALL PUBLIC HOUSING RESIDENTS

The PHA has completed its annual review of the Public Housing Utility Allowances and encourages residents to review the proposed utility allowances and support documentation. Residents may also provide written comments.

Pursuant to regulation 24 CFR 965.502, the Housing Authority of the City of

hereby provides 60 days’ notice to the public housing residents of the proposed utility allowances.

DATES AVAILABLE FOR REVIEW: TO

The PHA records and documents that provide the basis for the proposed utility allowances are available for review and comment during the dates listed above and at the following location:

**NOTE to PHA: Dates reflected above should be 30 days from date of notice. Below choose a location and provide address and time available for review.**

PHA’s main administrative office **(provide address)**

PHA development site management office **(provide address)**

Other: **(provide address)**

Changes were made due to:

ANNUAL UPDATE **(for Resident-paid utilities directly to utility companies)**

NEW SCHEDULED SURCHAGES **(for Check-metered utilities surcharged for**

**excess usage of PHA-paid utilities)**

REVISIONS TO: **(UTILITY ALLOWANCES OR SCHEDULED SURCHARGES)**

Basis of determination:

**NOTE to PHA: specific items of equipment and function whose utility consumption requirements were included in determining the amount of the allowances is stated in the review documents**

The PHA will gather all comments and review them at the close of the comment period. The PHA will respond to comments within days of the close of the comment period. Such written comments will be retained by the PHA and shall be available for inspection by residents.

PROPOSED EFFECTIVE DATE OF IMPLEMENTATION:

**\*Requests for relief from surcharges for excess consumption, payment of supplier billings in excess of the allowances for resident purchased utilities, may be granted by the PHA on reasonable grounds, such as special needs for the elderly, ill or disabled residents, or special factors, on a case by case basis. Such relief may be initiated by the verbal or written making of such request as an accommodation.**

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**INSTRUCTIONS FOR RESIDENT NOTICE OF PROPOSED UTILITY ALLOWANCES**

Dear Housing Agency:

Attached is a Sample Notice for the 60-Day Notice of Proposed Utility Allowances with 30-Day Comment Period (required in HUD regulations 24 CFR 965.502),

Please adapt this sample notice to your needs and copy onto your Agency’s letterhead. Be sure to remove all red and blue written print (these are notes to the Agency for explanation and completion of this form). Check boxes have also been provided to give the Agency choices to fit their needs.

Note: be sure to check your policies and Lease Agreement/homebuyer agreement for compliance regarding providing notification.

Review documents should be kept in a central location.

The PHA should get Board approval before setting an effective date of implementation.

Special Note: HUD regulations do not say that the PHA has to change the proposed utility allowances due to a resident’s comment, but that “The PHA’s determinations of allowances, scheduled surcharges, and revisions thereof shall be final and valid unless found to be arbitrary, capricious, an abuse of discretion or otherwise not in accordance with the law.”

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