

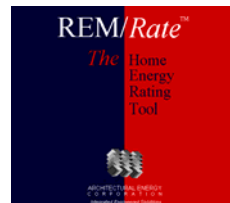
# REM/Rate<sup>TM</sup>

Home Energy Rating Software

## Advanced User's Workshop

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# Introduction

- Me
  - Product manager
  - Involved 13+ years
  - Engineer, software developer
- You
  - Why are you here?
  - Experience with REM/Rate?



# Overview

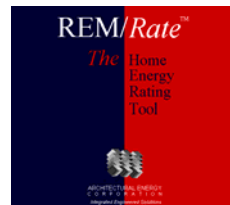
- Analysis
- Data output
- Technical
- Library management
- Tricks
- Options
- General discussion

# Analysis

- Improvement Analysis
  - Automatically analyzes the impact of multiple improvement measures
  - Ranks measures by economic performance using costs defined by user
  - Add measures on the fly
  - Measures can be “packaged”

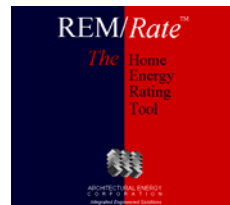
# Analysis

- User-Defined Reference Home
  - Create custom reference homes
  - Local codes, utility program baseline
  - Uses text file w/ scripting language
  - Example provided w/ software: m92bstn.udr
  - Start w/ copy of example, retain \*.udr extension
  - Extensive documentation in help system



# Analysis

- Batching
  - Building file modifications (File menu)
  - Results (Reports menu)
  - Batch report, includes Energy Star designation
  - Can generate UDRH and reports
  - Export database
  - Energy Star labels, mailing labels

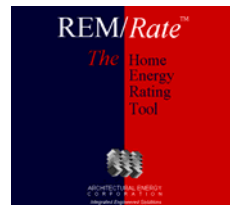


# Analysis

- Using batch/UDRH/export/queries to evaluate program-wide savings
  - Very powerful method of evaluating program performance
  - Requires some experience w/ Access

# Analysis

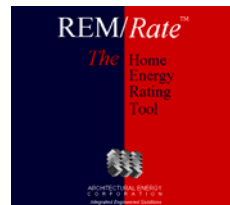
- Fannie Mae EEM Report
  - Used to process Energy Efficient Mortgages (EEMs) for new home construction
  - Document designed by Fannie to be compatible with Desktop Underwriting (DU) system
  - Default cost-weighted life of measures makes it very simple
  - Use 1993 MEC if no local code





# Data Output

- Multi-building reports
  - Two-building reports for comparison
  - Report list notation
    - (2) = 2-building only
    - (1) = 1-building mode only
  - Economic Summary
  - Examine/compare to reference homes for HERS, IECC, etc.



# Data Output

- Export Database
  - Access relational database
  - All input, nearly all output
  - Use for archiving, data mining (w/ queries)
  - Extensive documentation on Help menu

# Data Output

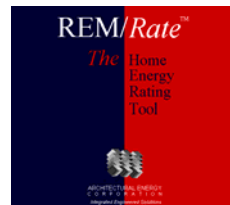
- CSV
  - Comma-separated variable
  - Imports into Excel
  - Single building results
    - Same file name as building file, csv extension
    - Toggle on/off on Options menu
  - Batch
    - Called batch.csv
    - Always generated

# Data Output

- Report grouping
  - Select multiple reports quickly
  - Can be defined by user

# Data Output

- Customizing reports w/ graphics
  - Add logo to reports
  - Top of page or watermark
  - Use Options menu to access setup screen



# Data Output

- Graphs
  - Quick, easy to use
  - Track impact of changes in building design
  - Use for client education/explanation

# Technical

- Input data restrictions for HERS score
  - Setpoints
    - Always 68/78
  - Shading
    - Only overhangs affect score
    - Interior and adjacent overridden
  - Infiltration
    - Minimum 0.35ach
    - Can go lower w/ ventilation

# Technical

- Conditioned vs. Unconditioned Basements
  - Conditioned - setpoint is maintained
  - Unconditioned - temperature calculated based on connections to conditioned/ambient, gain from ducts, equipment; generally floats 5 - 10 degrees lower than setpoint.
- Conditioned crawls/attics
  - Include the volume, not the area



# Technical

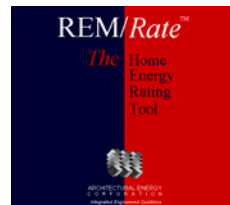
- Utility rates
  - Seasonal
  - Block rates

# Technical

- Integrated space/water heating systems
  - Boiler w/ side arm tank
    - Two systems: space heating, water heating
    - Use boiler AFUE for tank recovery efficiency
    - Set tank EF =  $0.75 * \text{recovery efficiency}$
  - DHW tank serving space heating coils
    - Two systems: space heating, water heating
    - Use tank recovery efficiency for space AFUE

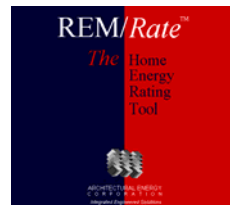
# Technical

- GSHPs – REM model vs vendor values
  - To use REM model, use single entry from GSHP library
  - To use vendor calculated seasonal efficiencies, use entries from heating only and cooling only libraries
  - REM model has fixed assumptions regarding soil characteristics



# Library management

- Message when opening building files
  - Be careful not to change building file
  - Can always clean libraries later



# Library management

- Transfer files
  - Easy way to share file entries
  - Select which entries

# Library management

- Library sets
  - Serves two purposes:
    - Sharing on a central server
    - Locking and shipping for consistency
  - Two levels of locking: set, entries

# Library management

- Sorting libraries
  - Up/down arrows
  - Faux entries for categorizing
    - E.g., “----- SIPs -----”

# Tricks

- Keyboard shortcuts
  - Equation solver in fields
    - All numeric inputs
  - Using Tab key to speed entry
  - Using <alt> key to access menus



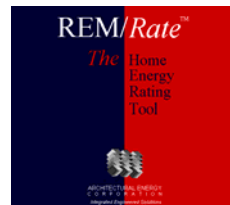
# Tricks

- Default building
  - On File menu
  - Lets you save/use partially filled out building
    - Your company name, etc.



# Options menu

- Web services
  - Registration
    - ID/PW must be exact, use copy/paste
    - Need to re-register annually to advance expiration date
  - Downloading print permissions
    - Also done during registration



# Options menu

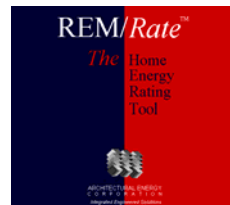
- Oversize factors
  - For equipment sizing report
  - 100% = multiplier of 1.0

# Options menu

- Rotate windows/skylights
  - Rotate manually
  - Determine worst-case orientation
    - HERS score, energy costs, design loads

# Options menu

- Logos in reports
  - Already covered
- Binding adjustments
  - Slide text over on printed reports to allow for binding



# Options menu

- Home energy rating certificate
  - HERS provider address
    - Appears in lower right corner
  - Criteria program check
    - Check if home meets energy codes imbedded in software
  - Disable regional criteria screen
    - Add program/regional criteria, check manually
  - Add signature line to report
    - For rater/provider to sign

# Options menu

- Energy Star certificate
  - Add rating score to certificate/label
  - Include border on certificate
  - Adjust printing offset for label

# Options menu

- Enable output results file
  - Comma-separated variable (csv) format
  - One file for each building file run
  - Same name as building file, \*.csv
  - Toggle on/off

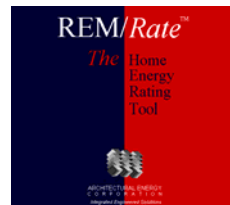


# REM/Rate v11.4

- IECC 2004 compliance reports
- Elite's RHVAC import
- New data on Quick Analysis screen
- ASHRAE 62.2 ventilation standards
- Notes dialog
- Electric resistance backup for heat pumps
- SIP and ICF added to wall library
- A locking scheme added to the component libraries

# REM/Rate v12.0

- Expected beta release July 2005
- Will not be accredited until January 2006
- Addresses all amendments to RESNET Standards
- Other expected improvements
  - Revised duct input/modeling scheme
  - Auto-generation of detailed lighting/appliance audit
  - Infiltration and duct leakage added to batch file modification
  - Spreadsheet data storage area, similar to Notes feature
  - New print previewer w/ zoom
  - More...



# General Discussion

- Questions?
  - Technical?
  - Features?
- Suggestions
  - New features
  - This curriculum

# REM/Rate<sup>TM</sup>

Home Energy Rating Software

Thank you!

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