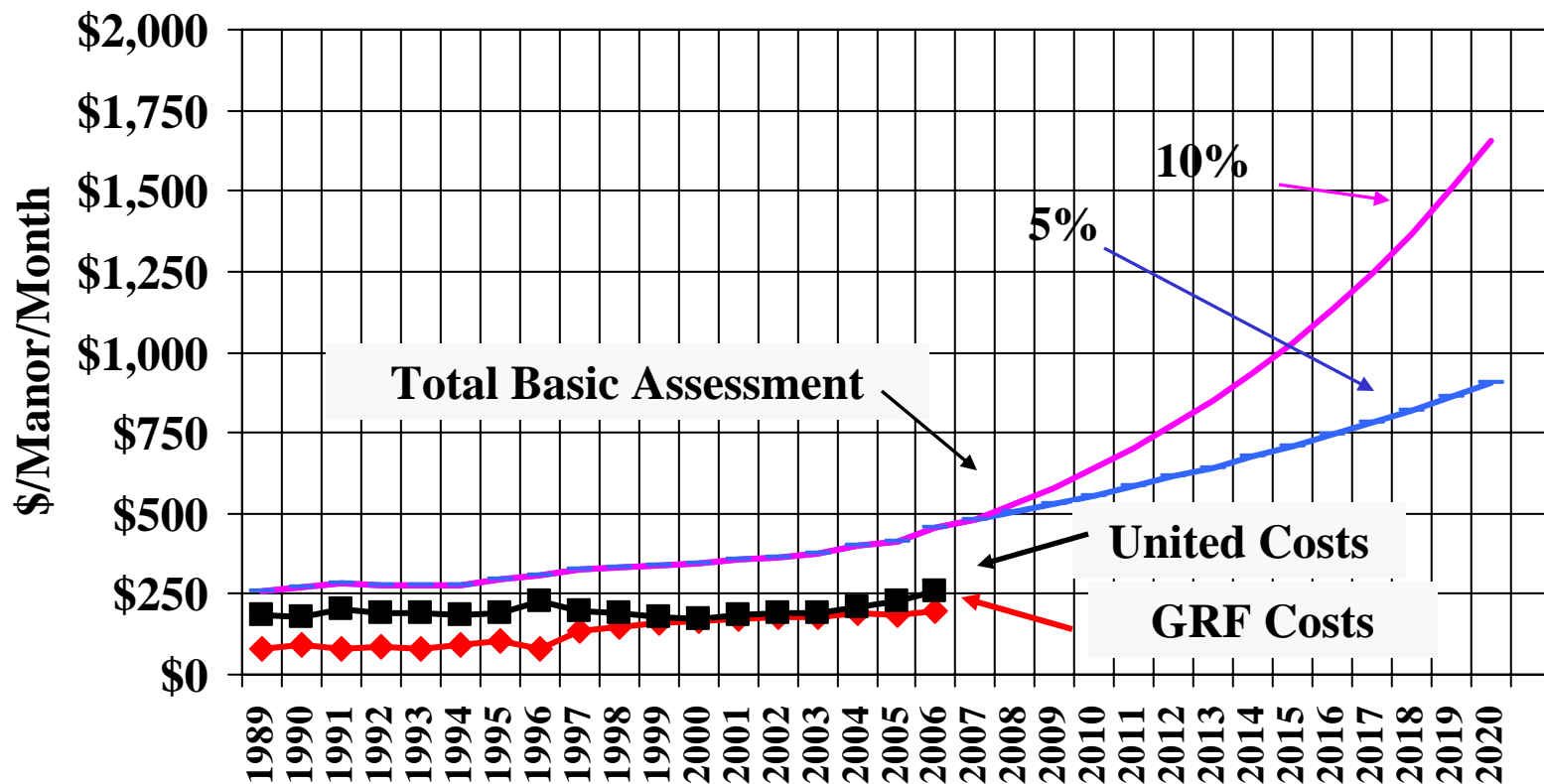


GRF vs United Assessments

\$/Manor/Month



Roof Observations

Definition!

- For this observation:
 - A “Rain Leak” can be anything associated with the roof including, roof tiles, paper, flashing, downspouts, etc. If the leak is concurrent with a rain, and, it requires someone to get up on the roof to make a repair, it is defined as a “Rain Leak.”

“The Questions?”

- Before continuing, please consider how *you* would answer the following questions using *your* expectations upon installing a new “20 year roof”:
 - What percent of buildings would you expect to have a “Rain Leak” within the first year after installing a roof ?
 - What percent of buildings would you expect to have a “Rain Leak” within 10 years after installing a roof ?
 - Do we have a procedure (current or future) for tracking the quality and wear out of our roof systems?

Why Roofs?

- 2006 Budget Reserve Expenditures for Roofs:
 - United \$2,451,631
 - Third \$1,676,796

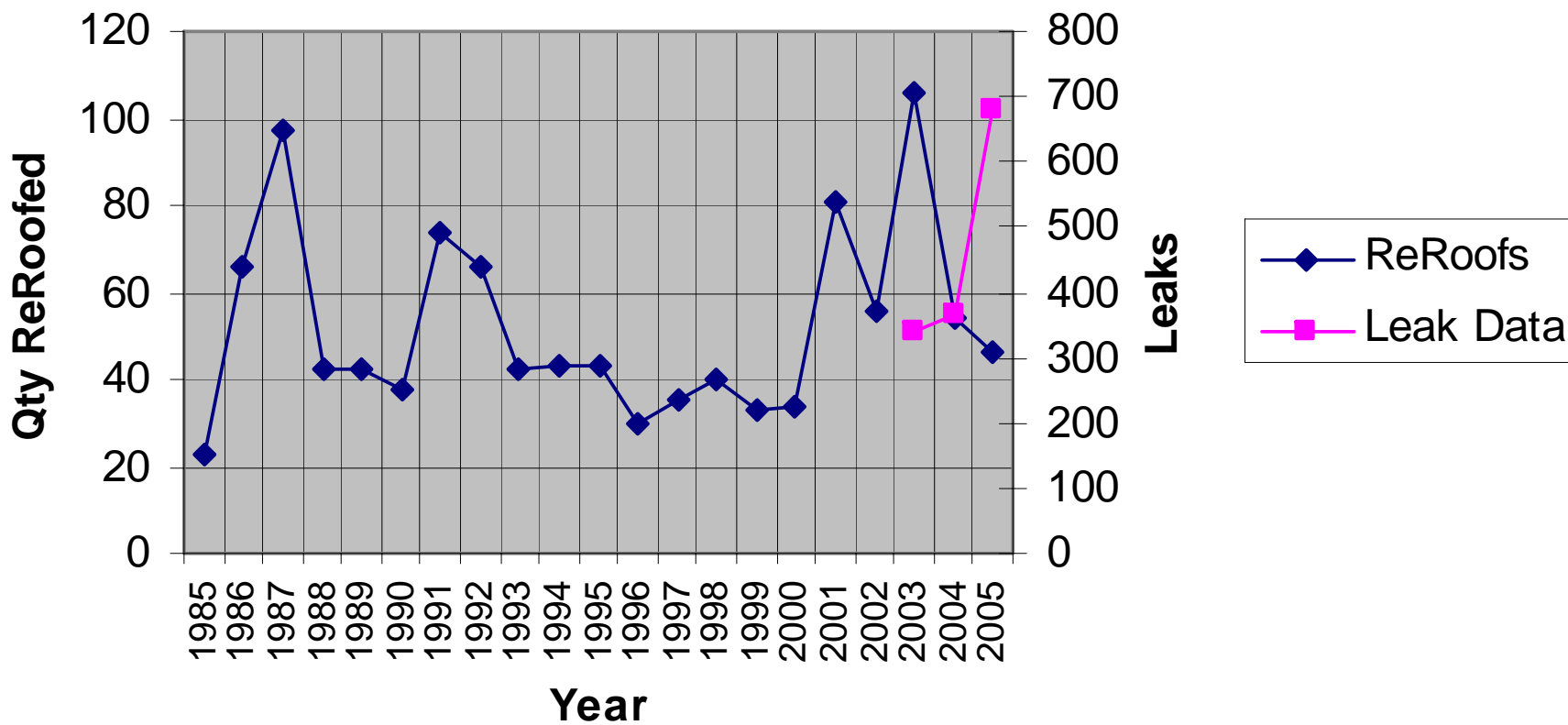
 - Total \$4,128,427 = \$12.69/Manor/Month

 - A 10% savings could = \$412,000 per year

Methodology!

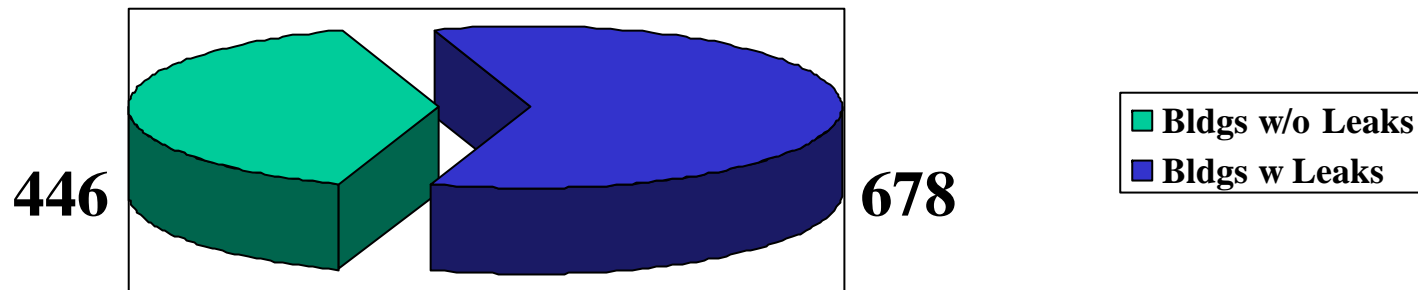
- Source Data:
 1. Roofing History from Erik Schneekluth (1/1/85-1/1/2006 with slight modification to account for buildings for which there were no records).
 2. Work Order Data from Cynthia Grace (2003-2005).
- Due to the limitations of the Work Order Data, the analysis was both “Right” and “Left” censored. Therefore the following data will err on the conservative side.

ReRoof vs Work Order Data



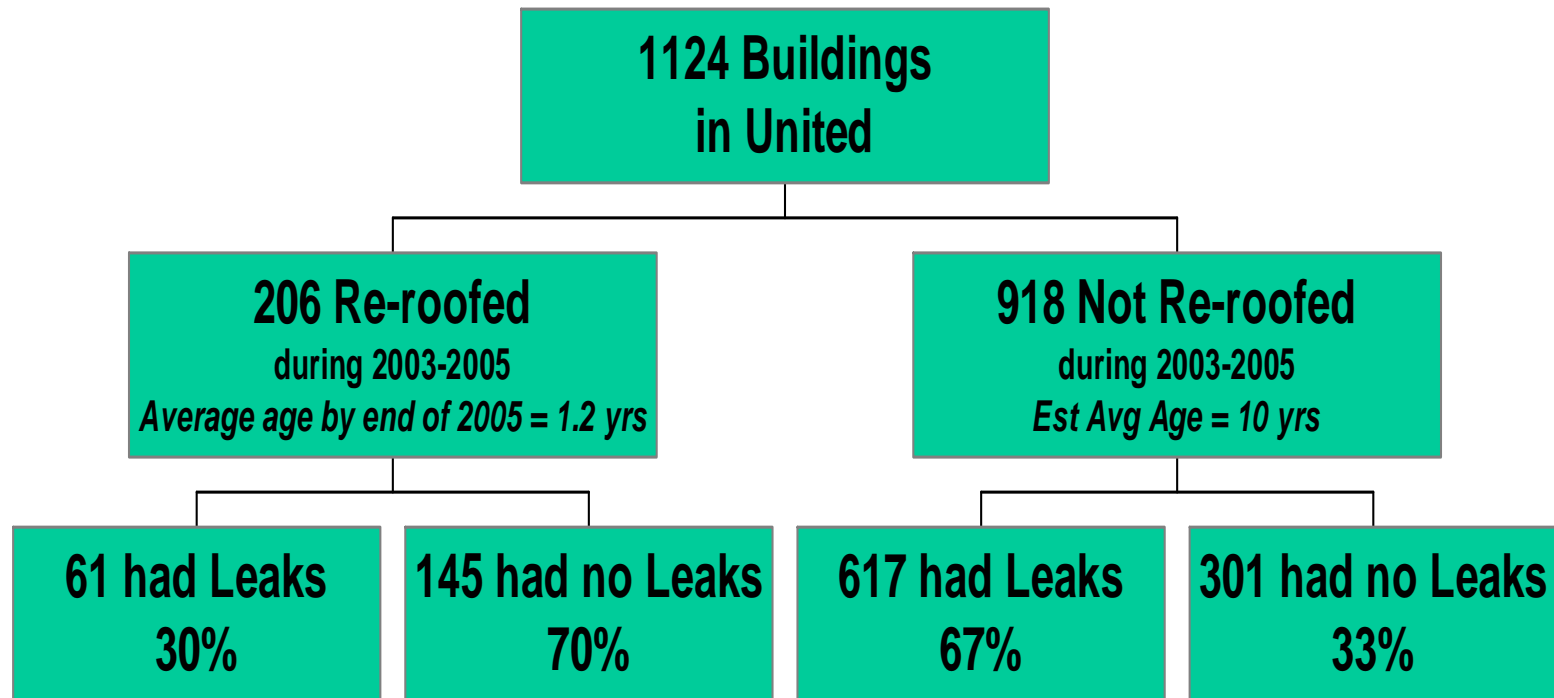
Is There A Rain Leak Problem?

**2003-2005 Data for
1124 Buildings in United Mutual**



40% had no leak - 60% had at least one leak

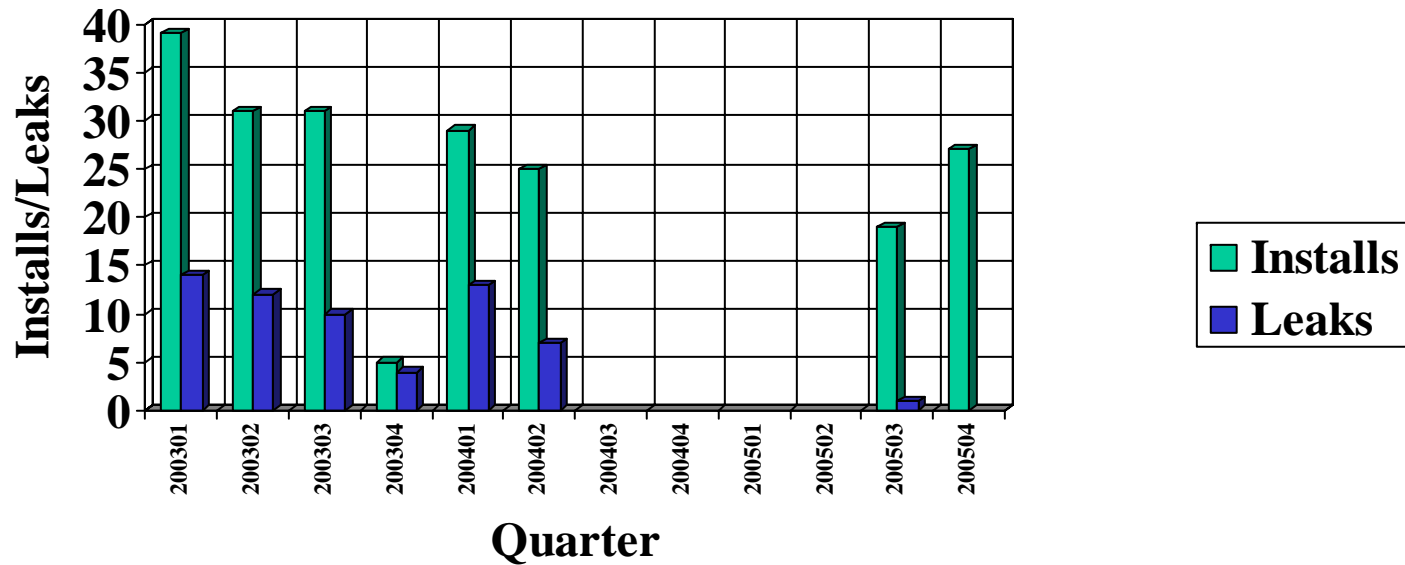
Some Further Observations



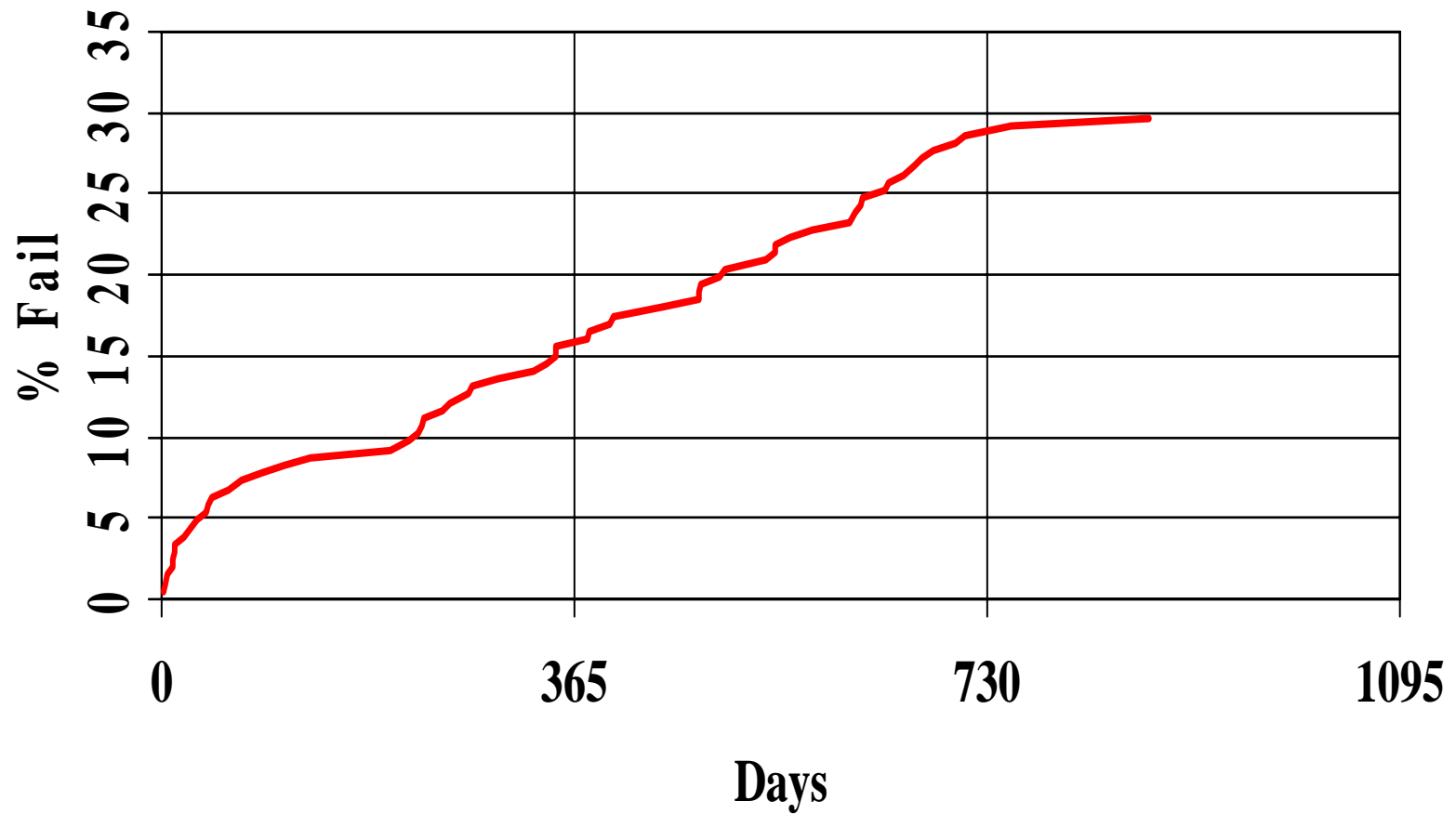
2003-2005 Installs

Data Anomally to Consider

Rain Leaks in Bldgs with Roofs Installed by Quarter



Cummulative % Fail of 206 Bldgs with New Roofs



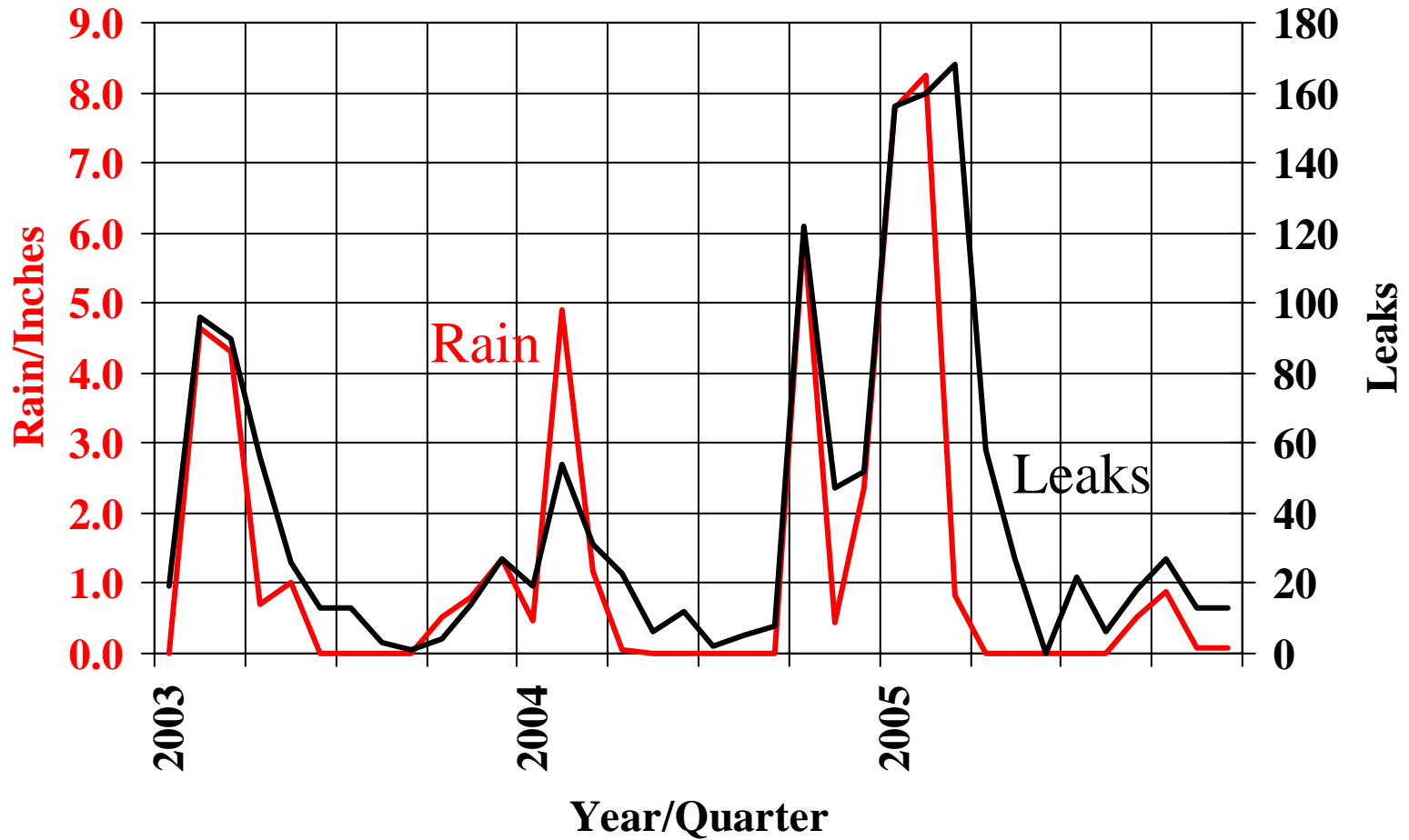
Answering “The Questions!”

- We cannot tolerate the 20% Rain Leak rate the first year after installation of a new roof!
- We cannot tolerate the 67% Rain Leak rate within 10 years after installation of a new roof!
- We have no current/proposed method for tracking the quality and actual life of our roofs.

Anticipating the Excuse!

- “Many of the ‘Rain Leaks’ are mis-coded and may have been due to leaks in water pipes or drain lines.”
 1. Of course, if this is true, why did it take so long to introduce a “Stellar” system, and, doesn’t hold much hope for the future of the database.
 2. However, if there is a correlation between “Rain” and “Rain Leaks,” it could relieve that concern.

Monthly Rain Leaks vs Inches of Rain



Immediate suggested action

- “Rain Leaks” are one of the parameters used to justify the installation of a new roof. Change the weighting of “Rain Leaks” in the algorithm.
- When installing a new roof or repairing an old roof, all potential “Rain Leak Areas” must be brought up to **“EQUIVALENT TO NEW.”**
 - Replace all flashing, redo all historical potential leak areas to eliminate **ALL** potential “Rain Leaks.”
- Establish a Quality Measurement in the Roofing Contract.

Consider This!

- After 40 years:
 - We have no current acceptable industry standard method for tracking roof /rain leak performance.
 - We have no **FUTURE** proposed method for tracking roof/rain leak performance (“Stellar” will not provide the type of information that is in this presentation).
 - We have no current Staff Analysts with actual experience in Maintenance & Service data analysis.
 - We have no Staff Analysts assigned the task of **ferreting** out potential problems (we are reactive only).

What Data Should We Expect

- Future data analysis should be able to answer all the questions brought out in this presentation, plus:
 - Comparison of Maintenance by Bldg Model.
 - Identification of High Potential Leak Areas by Bldg Model.
 - How do we measure quality of Roofing Company?
 - Can we expect Zero Rain Leaks after installing a new Roof?
 - What is the true “Life” expectancy of a “Roof System?”

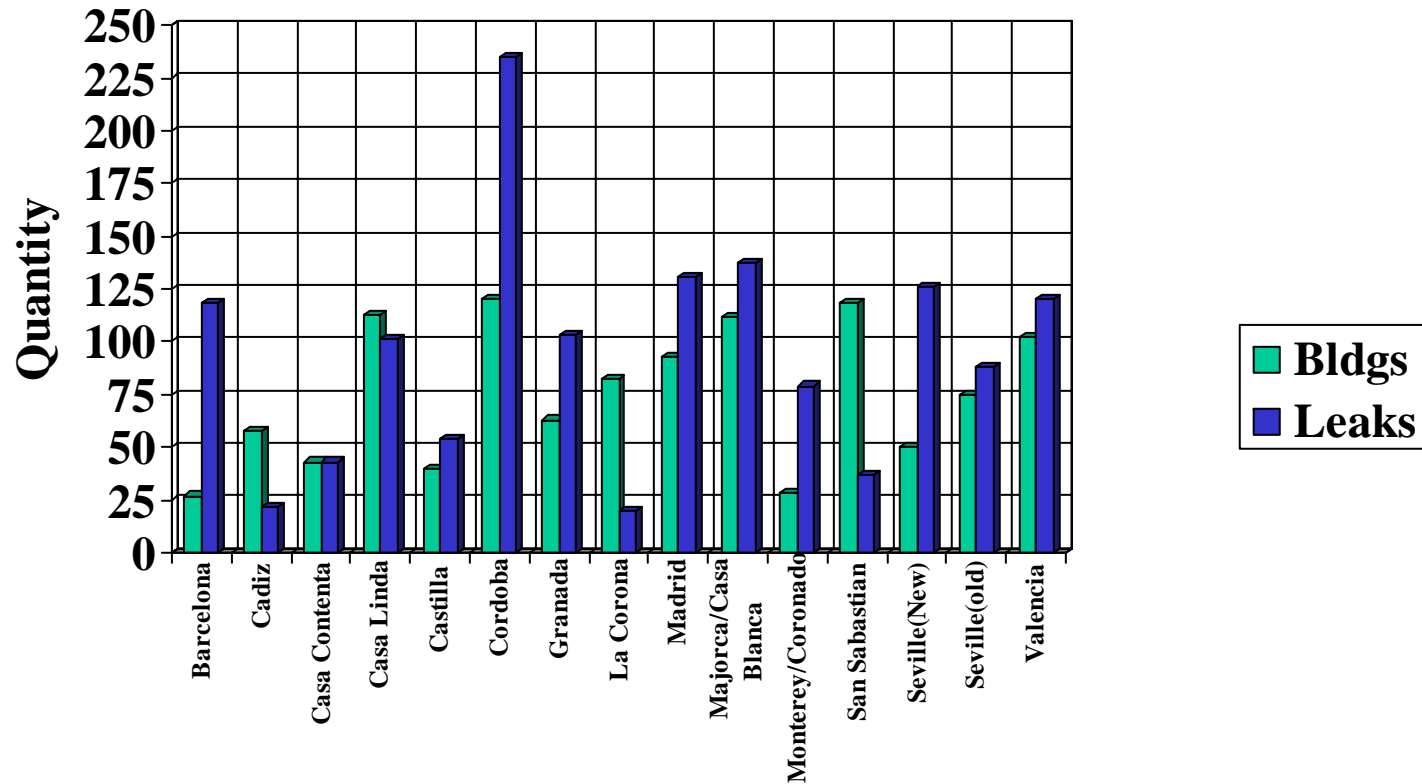
Why Financial vs Maintenance?

- Financial (current tracking method)
 - Estimates a “Roof Life” (ie; 15 years) and allocates funds to replace the roof after 15 years.
 - Self-fulfilling prophecy. If roof could last longer it will never be determined.
 - Does not measure quality.
- Maintenance (proposed tracking method)
 - Establish a “Roof Life” based on the actual life of a roof.
 - Use empirical data for measurement and projections.
 - Identifies quality measurements.

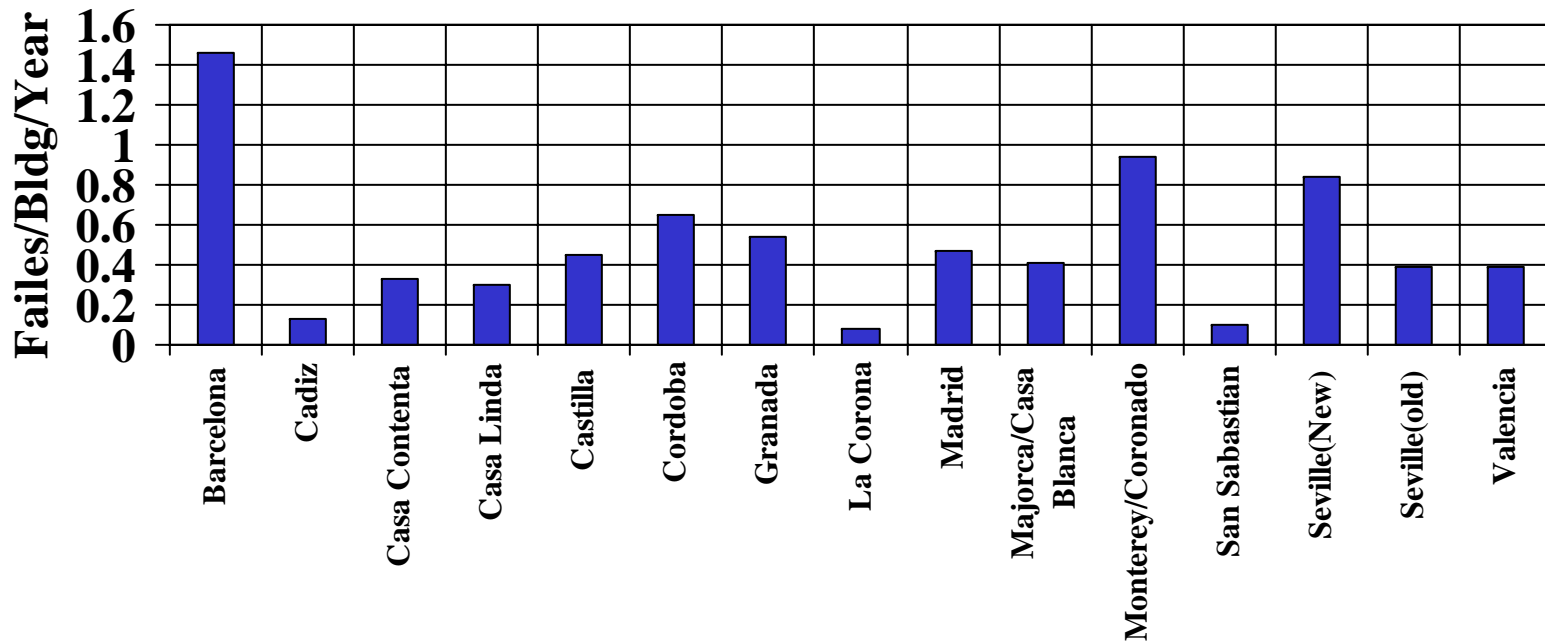
What Could We Track

- The following slides are a small sample of what kind of data is available to measure the Maintenance and Service of our Roofs.

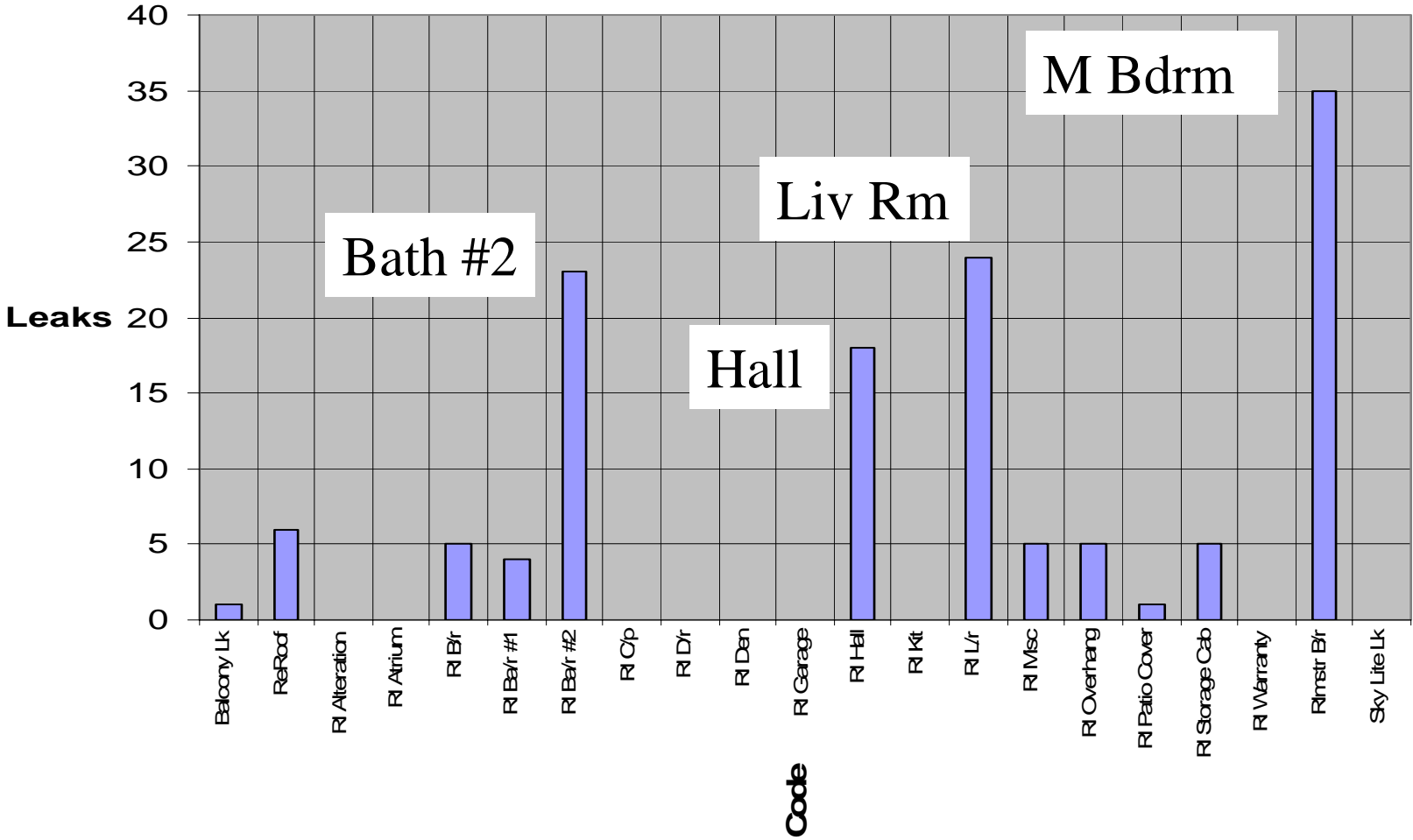
2003-2005 No. Bldgs vs Leaks by Model



2003-2005 Leak Rate/Bldg/Year by Model



Seville (Bldg Code 21) Leaks by Wk Code



Summary Based On 2003-2005 Work Order Data

- ***PROBLEM?***

- ***Nearly 700 manors had rain leaks during this period!***
- ***Over 30% continued to leak after new roof installation!***
- ***The Repair Budget for 2006 is over \$4 million dollars (nearly \$13 per manor per month)!***

- ***FIX?***

- ***Make a drastic improvement immediately for tracking all roofing problems and defining quality repairs!***
- ***Establish measurable specifications for roofing contractors!***
- ***Provide inspection oversight on each roofing job!***

Conclusion

Replacing Roofs
does not eliminate
Rain Leaks

The End

“STELLAR”

C. Grundke

OBJECTIVE

- Provide an understanding of what “Stellar” is, and,
- It’s current status, from the viewpoint of a United Board member.

DEFINITIONS

- *“Current System”*
 - The MIS Database *Service Order Entry System* that has been in use for at least the past 10 years to store Work Orders.

- *“Stellar”*
 - The new proposed *Service Order Entry System* for tracking Work Orders.

“CURRENT SYSTEM” TODAY

- The “Current System” is a data collection system using Sequel Instructions to recall the raw Service Order Entry Data.
- The “Current System” has no analysis built into it and requires manual extraction and manipulation by Staff to do any analysis of the data.
- Originally Designed for Financial Tracking only.

WHAT IS “STELLAR?”

- A proposed *Service Order Entry System* with capabilities to handle both:
 - Financial Tracking, and,
 - Maintenance Tracking

WHY “STELLAR?”

- The “*Current System*” was designed for Financial Tracking at it’s conception and is limited to only providing raw Maintenance Work Order Data as a by-product.
- The “*Current System*” is limited in flexibility which prevents incorporation of new Service Order Entry Data needed for Maintenance Tracking.

WHY NOW?

- “*Stellar*” information was needed, and could have been used for the past 20 years, but was never implemented since the only defined use of the Database was for Financial Tracking.
- The critical nature of the Housing Mutual infrastructure problems that have surfaced illustrate the need for Maintenance Tracking.

“STELLAR” HISTORY?

- *“Stellar”* has been in development for about 5 years.
- Effort is underway to convert from the *“Current System”* to *“Stellar”* by Work Center.
- Work Center 917 is currently using *“Stellar.”*
- Additional Work Centers are scheduled for conversion in the first half of 2006.

“STELLAR” TODAY!

- ***“Stellar”*** is a magnificent ***Data Collection*** system with instant recall of the raw Service Order Entry Data to the user’s display screen.
- ***“Stellar”*** has ***No Analysis Capabilities*** built into it, and at this time, there is no definition of what it should be able to do with the raw data in the future. At this time any analysis that is done by Staff will still need to use the ***“Current System.”***

WHAT DOES THAT MEAN?

"Current System"



"Stellar" System This Year



BUT, it is not until Next Year that we get the



“STELLAR” TOMORROW!

- It will take the rest of the year to update all of the ***“Current System”*** Database into the ***“Stellar”*** System.
- It will then be available for program development to create analysis software for use by Management and the Boards.

PROBLEM

- Present Staff Analysts do not have time to define the software that is required for ultimate use in managing our Maintenance and Service departments.
- “Stellar” potential will be unfulfilled for years.

HOW DO WE PROCEED?

- We must immediately Select an option:
 - Hire an outside Independent Experienced Consultant to define the uses of the database.
 - Assign a Staff Analyst with the job description that would have them learn the Industry Standard Methods for analyzing Maintenance and Service Tracking.

CONCLUSIONS

- We have spent \$,\$\$\$,\$\$\$.\$\$ to implement “Stellar” System and there is no end in sight with a “Business as Usual” approach.
- We need to find monies to immediately move forward with the implementation of the **potential** use of the “Stellar” System.

THE END