

**“Thank You for Your Support”
OUCH!**

Engineering and the Standard of Care

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Program Overview

- ◇ Focus is on a construction claim.
- ◇ Claim filed by owner against architect, engineer and equipment vendor and manufacturer.
- ◇ Claim included both 'bricks and mortar' damages and business loss damages.
- ◇ The presentation will cover the key areas of the claim, the source of the errors and the final verdict regarding the claim.

Project Background

The Owner, a REIT...

- ◇ hired an Architect to design a facility for the tenant - pharmaceutical packaging.

Lease defined...

- ◇ required occupancy date
 - ("a date certain").

The Tenant...

- ◇ Occupying owned & leased space;
- ◇ Lease expired 30 days after contract date;
- ◇ Agreement of sale set;
- ◇ Existing equipment to be moved to new facility

The Design Team

- ◇ Architect hired by Owner
- ◇ MEP consultants hired by Architect

- Invoices marked up 15%!

Design to comply with...

- ◇ ...Office park standards
 - Architect had prior experience
- ◇ ...tenant supplied 'work letter' with performance requirements.
 - Room pressurization gradients
 - Room temperature
 - Room relative humidity.

The problem...

Upon completion and occupancy it was found that...

- ◇ The Facility did not perform at the level defined by the terms of contract between the designers and the owner (and tenant).
- ◇ The tenant spent additional money to 'solve' these problems and withheld rent from the owner to 'compensate' for the additional expense.

Project Background

- ◇ *During validation it was found that the HVAC system could not maintain the pressure differentials between critical spaces nor could it maintain the temperature and humidity levels within the required ranges.*
- ◇ *During the 'fix' period, the tenant had to postpone start of packaging contracts and delay 'tours' with potential clients until problems were fixed.*
- ◇ *Eventually the tenant installed modular controlled environment rooms in the warehouse space to provide the required controlled environment.*

Our role??

Retained by counsel for the owner ...

- ◆ ...to investigate failures on behalf of owner and tenant.
- ◆ ...to ascertain responsibility for failure and assist in evaluating "reasonable-ness" of repairs.

What is the 'exposure'?

To Tenant:

- ◇ Capital costs to correct problems;
- ◇ Lack of 'beneficial occupancy' during correction period
 - (can't use facility as intended while 'fixing' problems)

To Owner:

- ◇ Lack of rent revenue impacts 'cost' of project as Owner must carry debt without revenue

Defendants??

- ◇ Design Architect
- ◇ Design Engineer
- ◇ Equipment Vendor
- ◇ Equipment Manufacturer
- ◇ Mechanical Contractor

What are the key issues?

Design:

- ◇ failure to provide professional design services in accordance with the custom and practice of the industry;
 - due diligence; design services and engineering consultation

Sales & Manufacturing:

- ◇ 'pre-install' – failure to fully disclose the intended equipment application;
- ◇ 'design' – failure to use reasonably available tools to analyze suggested equipment
- ◇ 'post install' – failure to inform Owner of compromising test data in a timely fashion

“The Standard of Care”

- ◇ ... [to] “exercise the average degree of skill, care, and diligence exercised by members of the same profession (or specialty within that profession), practicing in the same or a similar locality in light of the present state of the profession”
- ◇ (Gillette v. Tucker). See Black’s Law Dictionary, 6th edition. 1404-5.

Key Findings - Design

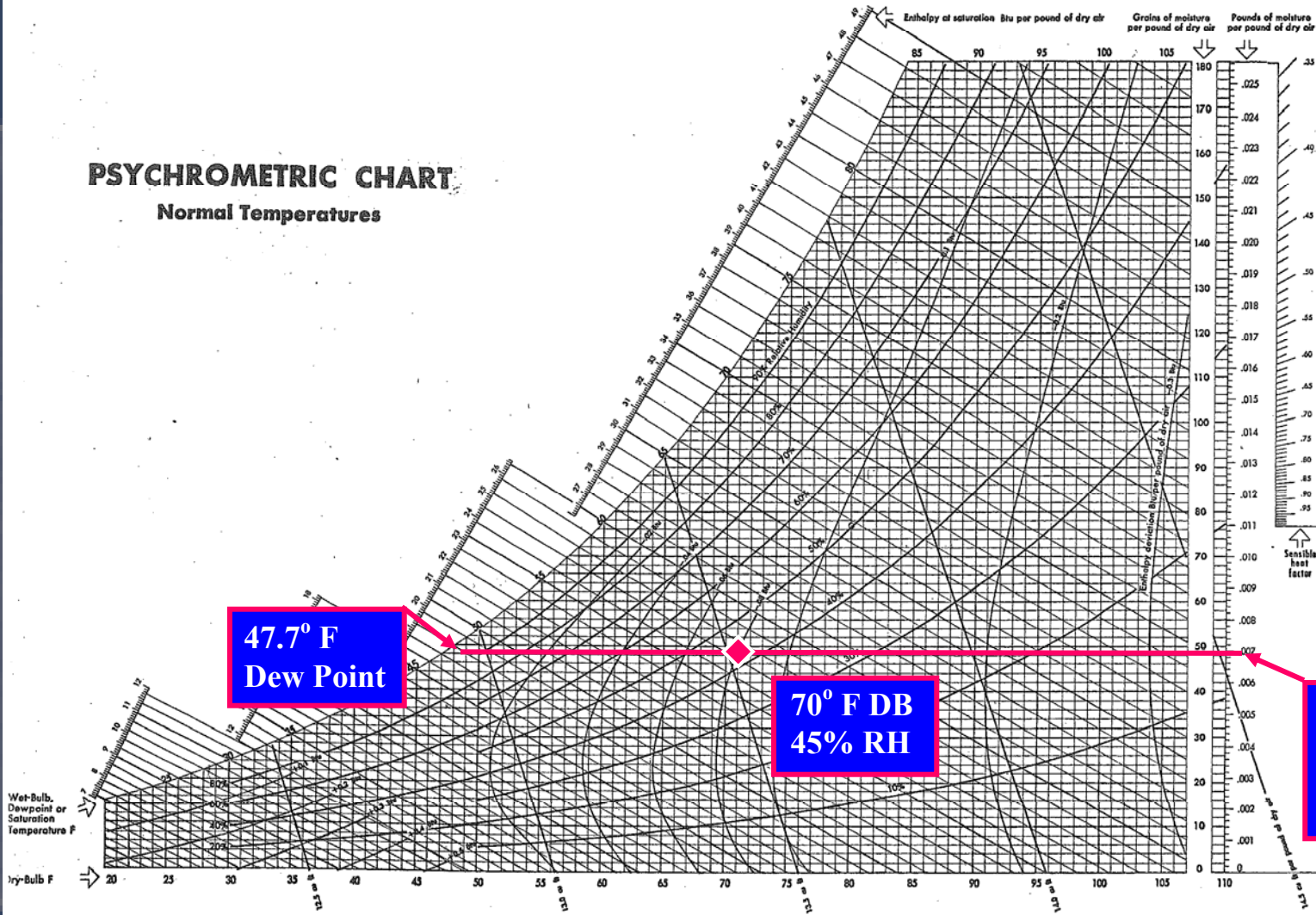
- ◇ *No experience in or knowledge of pharmaceutical requirements.*
- ◇ *failed to perform engineering analyses (design and due diligence) in accordance with the custom and practice of the industry...*
- ◇ *allowed equipment vendor to perform fundamental calculations which 'defined' performance for HVAC systems ...*
- ◇ *"solutions" offered to operational problems after construction added equipment which 'covered' E & O defects of design...*

Key Findings - Equipment

- ◇ *...failed to identify the intended applications of the 'sold' equipment*
 - *and that those applications were not equivalent to project's intended application...*
- ◇ *...failed to utilize the available analysis tools to analyze and optimize the equipment;*
- ◇ *...the installed equipment was not designed or configured to satisfy the performance requirements of this application...*
- ◇ *...failed to respond adequately or truthfully to the owner's request for information on other similar installations and/or applications of the 'sold' equipment.*

Required Room Condition

PSYCHROMETRIC CHART Normal Temperatures



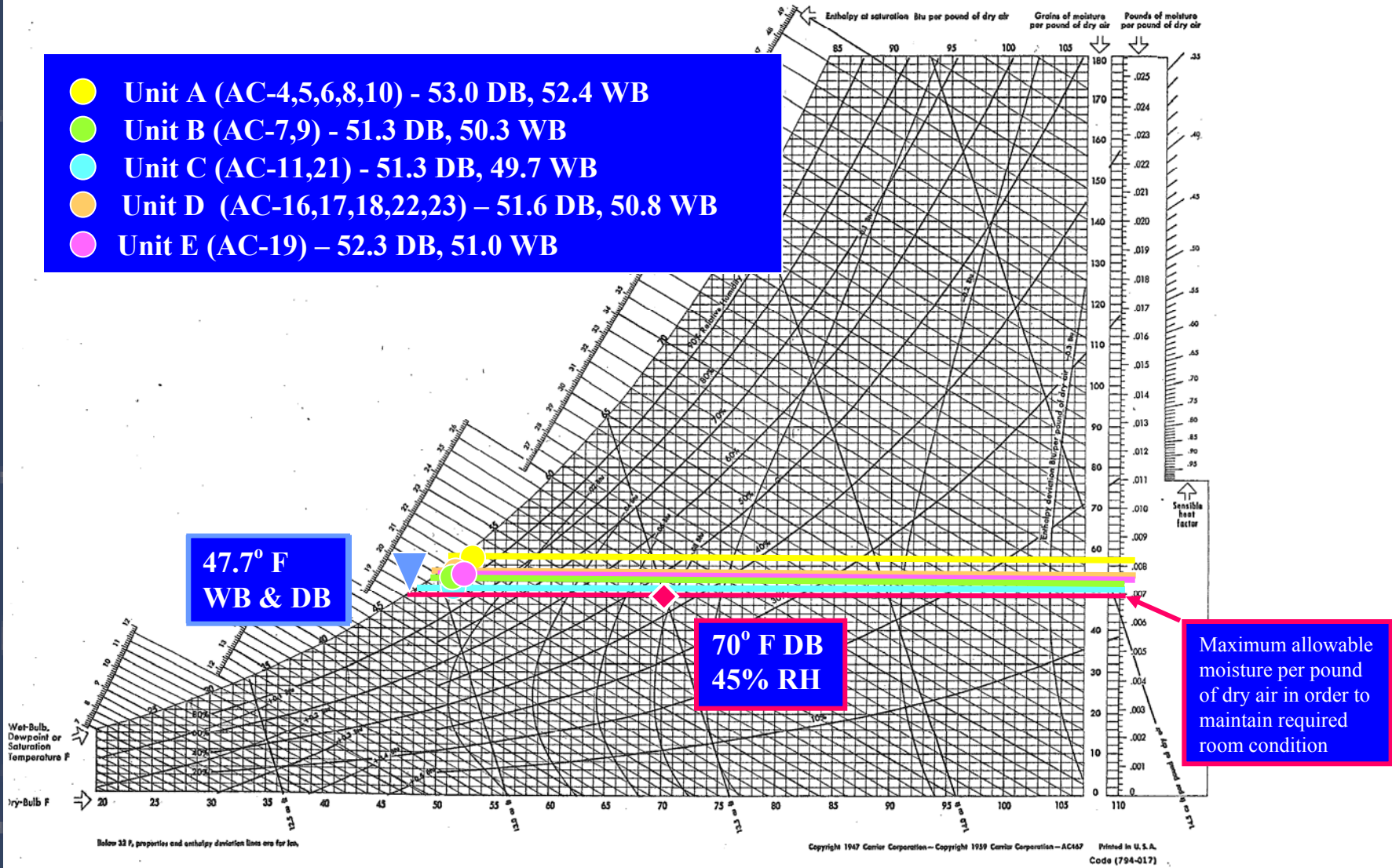
47.7° F
Dew Point

70° F DB
45% RH

Maximum allowable
moisture per pound
of dry air in order to
maintain required
room condition

Required Room Condition with Unit LATs

- Unit A (AC-4,5,6,8,10) - 53.0 DB, 52.4 WB
- Unit B (AC-7,9) - 51.3 DB, 50.3 WB
- Unit C (AC-11,21) - 51.3 DB, 49.7 WB
- Unit D (AC-16,17,18,22,23) - 51.6 DB, 50.8 WB
- Unit E (AC-19) - 52.3 DB, 51.0 WB



47.7° F
WB & DB

70° F DB
45% RH

Maximum allowable
moisture per pound
of dry air in order to
maintain required
room condition

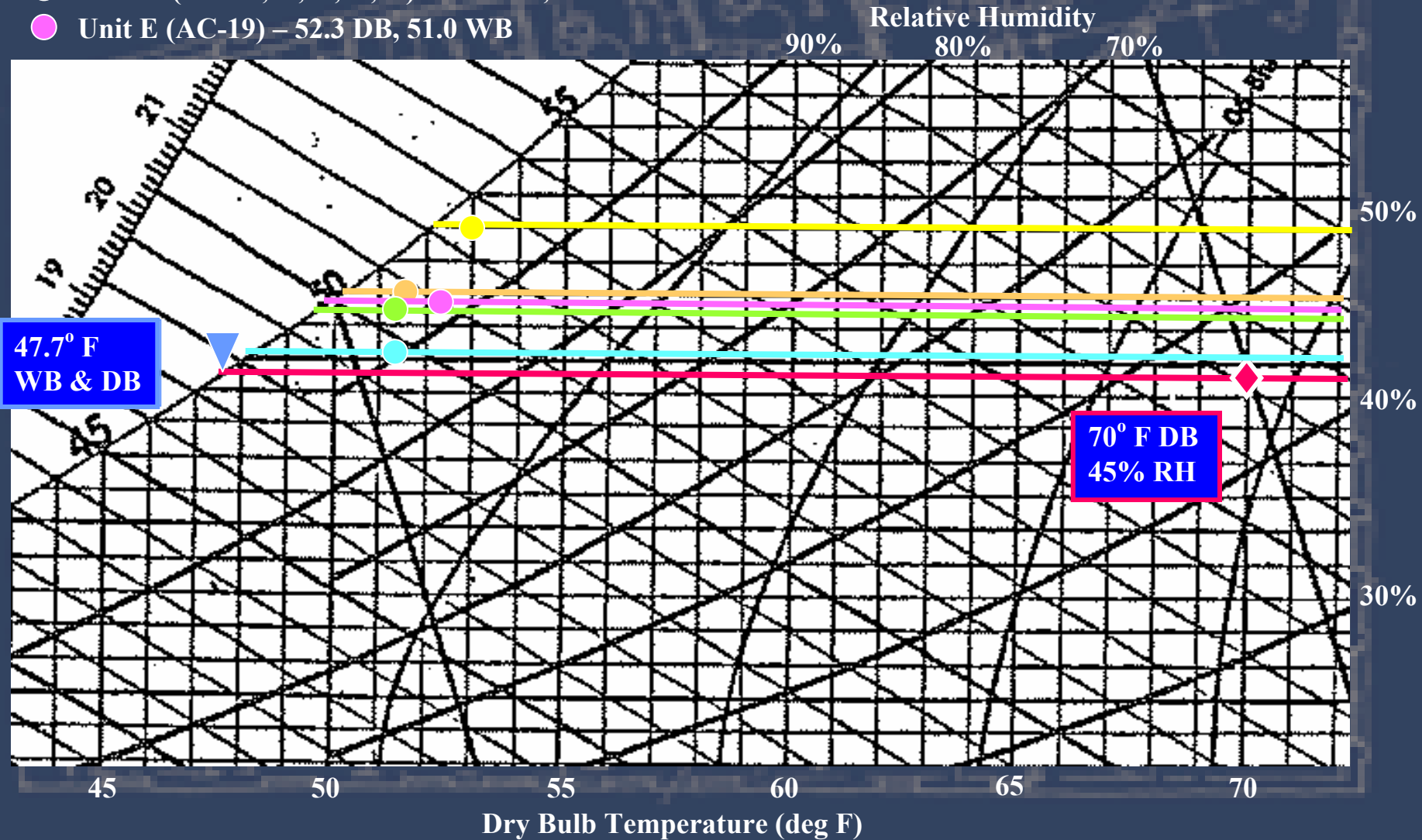
Below 33 F, properties and enthalpy deviation lines are for ice.

Psychrometric Chart Section with Unit LATs

- Unit A (AC-4,5,6,8,10) - 53.0 DB, 52.4 WB
- Unit B (AC-7,9) - 51.3 DB, 50.3 WB
- Unit C (AC-11,21) - 51.3 DB, 49.7 WB
- Unit D (AC-16,17,18,22,23) - 51.6 DB, 50.8 WB
- Unit E (AC-19) - 52.3 DB, 51.0 WB

◆ Room Condition- 70.0 DB, 45% Max RH
(corresponds to 47.7 Dew Point Temp)

▼ Maximum theoretical leaving air temperature in order to maintain the required room condition



Key Findings - Equipment

- ◇ *...failed to identify the intended applications of the 'sold' equipment*
 - *and that those applications were not equivalent to project's intended application...*
- ◇ *...failed to utilize the available analysis tools to analyze and optimize the equipment;*
- ◇ *...the installed equipment was not designed or configured to satisfy the performance requirements of this application...*

Key Findings Equipment

- ◇ *... failed to respond adequately or truthfully to the owner's request for information on other similar installations and/or applications of the 'sold' equipment.*
- ◇ *... failed to disclose post installation analysis data that indicated that the system could not perform properly at the required operating conditions and that continued operation at those conditions would likely lead to compressor damage.*

Key Findings

- ◆ *After several unsuccessful correction efforts, the tenant installed modular controlled environment rooms in the warehouse space to provide the required controlled environment. The Owner sued the engineering firm, the architect, the HVAC equipment sales/vendor representative, the equipment manufacturer and the installing contractors.*

The Verdict

Tried in State of New Jersey by Jury

- ◇ *Jury Decision and award in favor of Owner and Tenant*

Damages awarded for...

- ◇ *loss of beneficial use;*
- ◇ *expenses associated with modular cleanrooms;*
- ◇ *diminution of value (lost warehouse);*
- ◇ *E & O derived costs*

Lessons Learned

Design Professionals...

- ◇ *Do proper due diligence :*
- ◇ *Review shop drawings thoroughly!*
 - *Do not 'dump it on' junior staff.*
- ◇ *Document critical criteria and basis of design...*
- ◇ *DO NOT LET VENDOR DO YOUR DESIGN!!!!!!!*

Equipment Vendors...

- ◇ *Do not 'extrapolate' equipment performance without good analysis;*
- ◇ *Do not overstate equipment's capabilities;*
- ◇ *Do not withhold critical information;*
- ◇ *DO NOT 'TAKE OVER' DESIGN RESPONSIBILITY OF THE ENGINEER!!!*

Lessons Learned

Owners...

- ◇ *Clearly define performance criteria and standards which must be met.*
- ◇ *Do proper "due diligence" on design professionals.*
- ◇ *DO NOT 'BUY' DESIGN SERVICES 'ON PRICE'!!!!!!*

Thank You!

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