

THE END-USE LOAD
AND CONSERVATION ASSESSMENT PROGRAM

COMMERCIAL BUILDING RECRUITMENT
MEASUREMENT PLANS AND INSTALLATION

presented by:

Richard Mazzucchi — Commercial Study Coordinator

Scott Craig — Commercial Recruitment Task Leader

Bill Sandusky — Installation Manager

Gerry Stokes — Assoc. ELGAP Manager

of:

BATTELLE
PACIFIC NORTHWEST LABORATORY

DISCUSSION TOPICS

Recruitment Process — Purpose, Procedure, and Plan

Recruitment Status — Statistics, Issues, and Experiences

Measurement Plans — Process, Priorities, and Challenges

Installation Activities — Procedures, Experiences, and Plans

Data Verification — Process, Programs, and Procedures

Questions and Answers

RECRUITMENT PROCESS

PURPOSE: ACQUIRE AUTHORIZATION TO CONDUCT
PROJECT ACTIVITIES AT SITE

TECHNIQUE: 1. Identify Authorized Signator
2. Garner Interest in Study
3. Negotiate Access Agreement

TARGET: 200 Seattle Buildings
29 Purchase of Energy Saving Sites
40 Commercial Audit Program Sites

BUILDING CONTACT STAGES

1. INITIAL CONTACT CALL
2. INTRODUCTORY LETTER AND BROCHURE
3. FOLLOW—UP CALL
4. ON—SITE BRIEFING
5. ACCESS AGREEMENT NEGOTIATION
6. INSTALLATION CONTRACTOR ASSIGNED
7. INITIAL SITE EVALUATION
8. AUDIT AND MEASUREMENT PLAN
9. EQUIPMENT INSTALLATION
10. SITE AND DATA VERIFICATION

ACCESS AGREEMENT PROVISIONS

- * ACCESS TO UTILITY BILLING
 - * ACCESS TO BUILDING
 - * ACCESS TO DATA
- * PARTICIPANT INDEMNIFICATION
 - * COMPLIANCE WITH LAW
- * EQUIPMENT OWNERSHIP & LIABILITY
 - * PUBLICITY / DATA DISCLOSURE
- * COORDINATION OF BUILDING CHANGES
 - * CONTACT DESIGNATION

RECRUITMENT PLAN

Negotiate at least 30 agreements per month across all building sectors and sizes, so that contractors will have ample candidate sites, and that final resource allocations can be balanced based upon accumulated learning.

Initial focus is on thirty post 1981 construction sites, recruitment of very large buildings will be last.

COMMERCIAL BUILDING RECRUITMENT STATUS

PRESENTED BY:

SCOTT CRAIG
MANAGER COMMERCIAL RECRUITMENT TASK

OF:

BATTELLE
PACIFIC NORTHWEST LABORATORY

DISCUSSION TOPICS

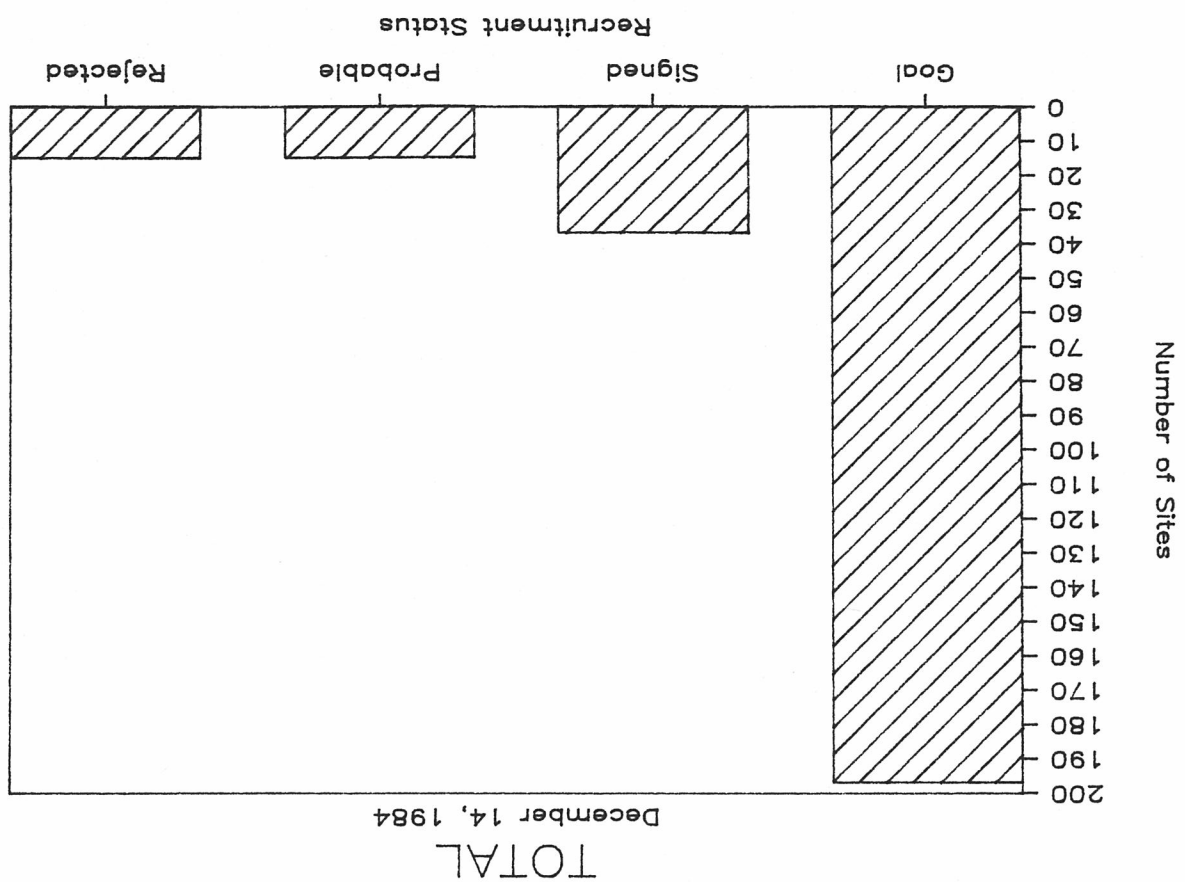
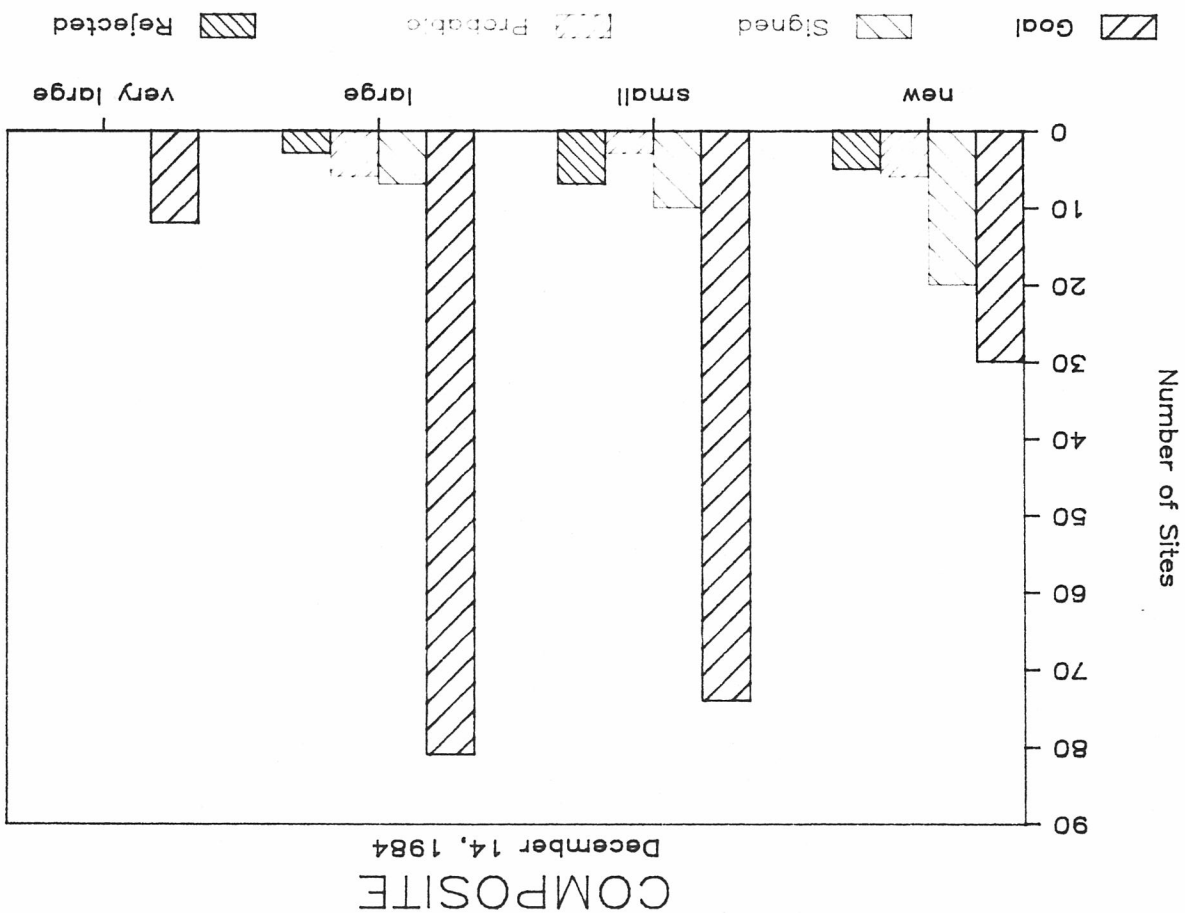
- * TARGETS
- * STATUS
- * ISSUES
- * EXPERIENCES

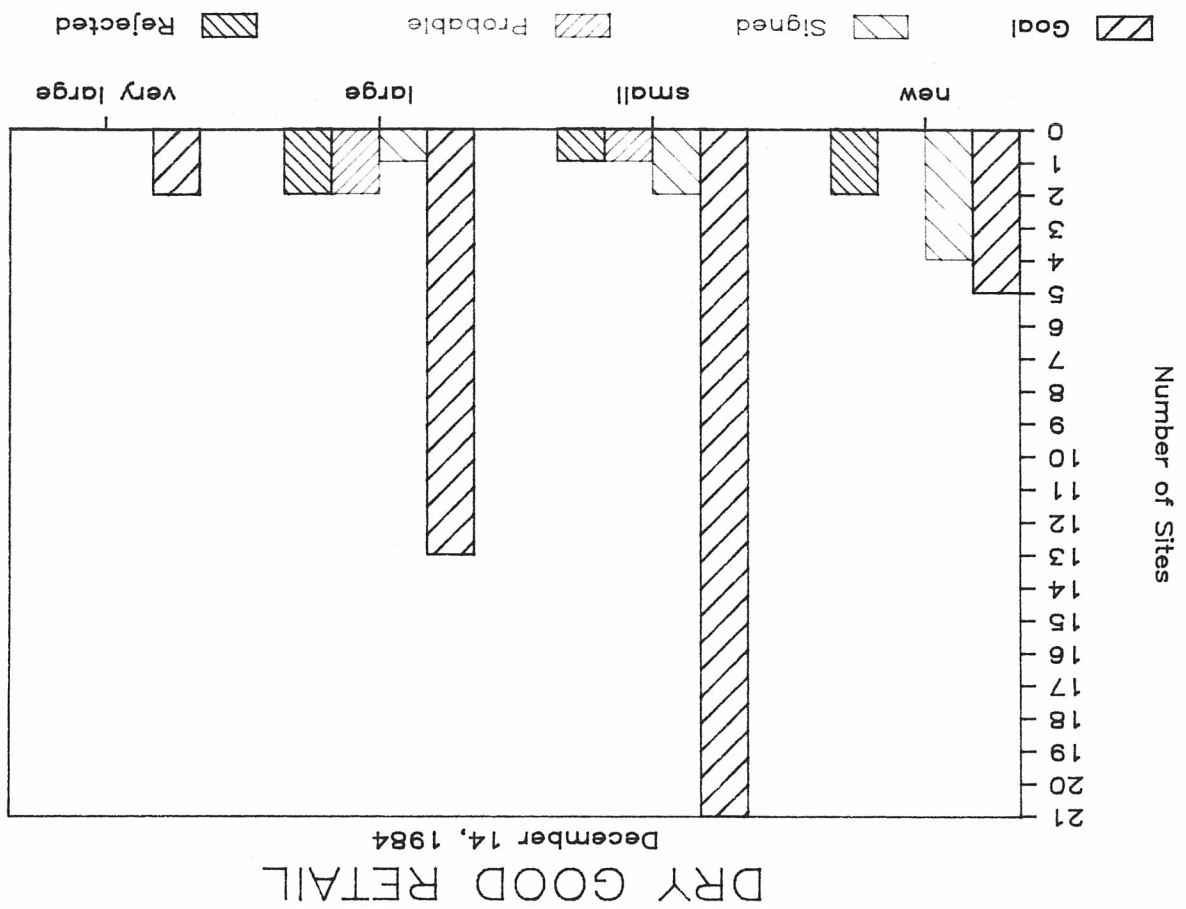
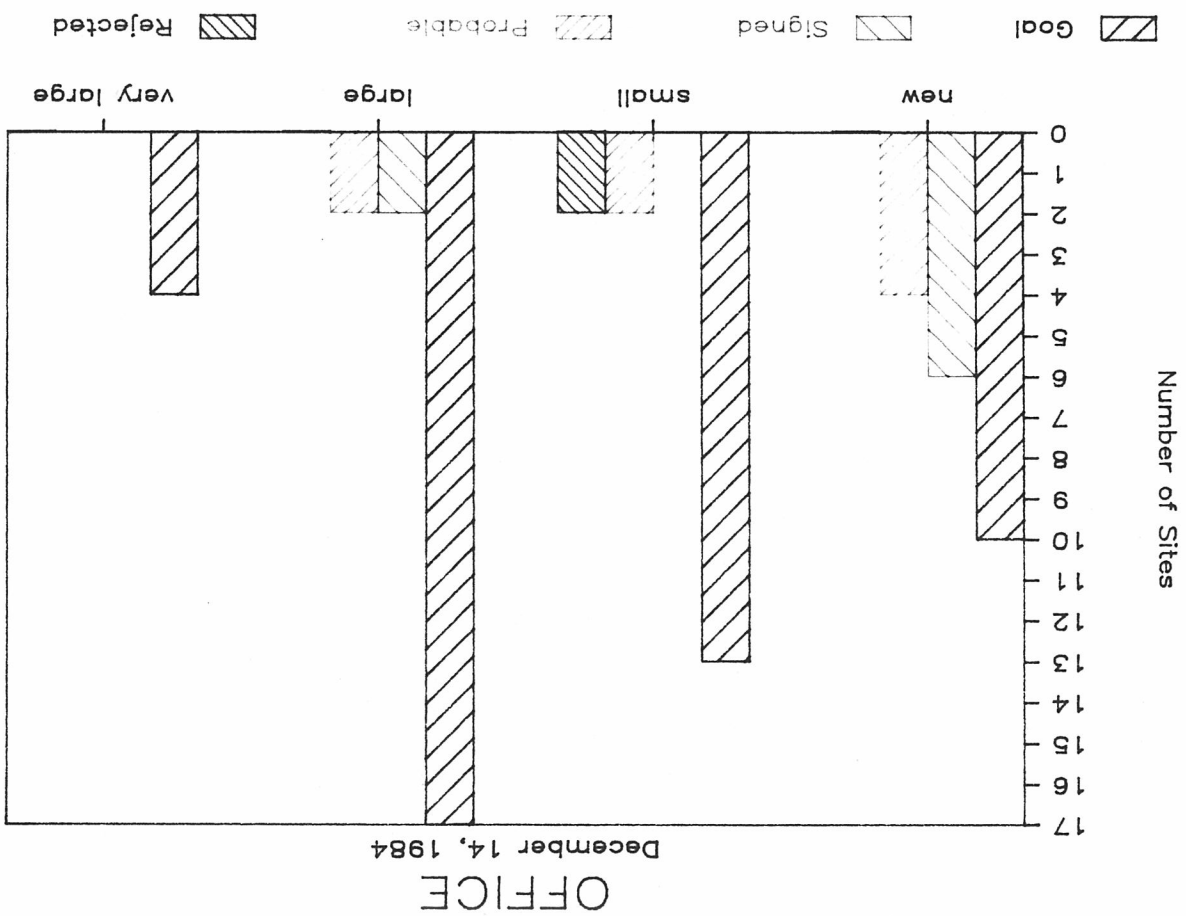
COMMERCIAL SAMPLE DESIGN TARGETS	
BUILDING SECTOR	NUMBER OF SITES
WAREHOUSES	24
DRY GOOD RETAIL	41
GROCERY	24
HOTEL/MOTEL	5
RESTAURANTS	23
SCHOOLS	13
HEALTH SERVICES	7
UNIVERSITY	7
OFFICE	44
OTHER	7

Number of Sites

Building Classification	AA	Sites Probable	Rejected	Total Candidates	Candidate Sites Remaining
WAREHOUSE	5	3	1	16	12
new	5	3	1	16	12
small	4	3	2	15	10
large	13	2	0	23	21
very large	2	0	0	3	3
DRY GOOD RETAIL	5	4	0	13	7
new	5	4	0	13	7
small	21	2	1	48	45
large	13	1	2	13	10
very large	2	0	0	1	1
GROCERY	5	3	0	5	2
new	5	3	0	5	2
small	7	0	1	20	19
large	12	1	1	21	19
very large	0	0	0	0	0
HOTEL/MOTEL	0	0	0	0	0
new	0	0	0	0	0
small	2	1	0	0	-1
large	2	1	0	0	-1
very large	1	0	0	0	0
RESTAURANT	5	4	1	9	3
new	5	4	1	9	3
small	9	0	1	26	25
large	9	0	0	13	13
very large	0	0	0	0	0
SCHOOL	0	0	0	0	0
new	0	0	0	0	0
small	8	1	0	0	-1
large	3	0	0	0	0
very large	2	0	0	0	0
HEALTH SERVICES	0	0	0	0	0
new	0	0	0	0	0
small	3	0	0	0	0
large	3	0	0	0	0
very large	1	0	0	0	0
UNIVERSITY	0	0	0	0	0
new	0	0	0	0	0
small	3	0	0	0	0
large	3	0	0	0	0
very large	1	0	0	0	0
very large	0	0	0	0	0

Building Classification		AA				Number of Sites			
Goal	Signed	Probable	Rejected	Total	Candidate Sites	Remaining			
OFFICE									
new	10	6	4	0	33	27			
small	13	0	2	2	26	24			
large	17	2	2	0	24	22			
very large	4	0	0	0	13	13			
OTHER									
new	0	0	0	0	0	0			
small	2	3	0	0	-3	0			
large	7	0	0	0	0	0			
very large	0	0	0	0	0	0			
COMPOSITE									
new	30	20	6	5	76	51			
small	74	10	3	7	135	118			
large	81	7	6	3	94	84			
very large	12	0	0	0	17	17			
TOTAL	197	37	15	15	322	270			





MEASUREMENT PLAN TOPICS

- * END-USE CATEGORIES
- * BUILDING USE ZONES
- * MEASUREMENT REQUIREMENTS
- * MEASUREMENT PRIORITIES
- * PLAN DEVELOPMENT PROCESS

COMMERCIAL BUILDING END-USE CATEGORIES

- * SPACE HEAT
- * SPACE COOLING
- * VENTILATION
- * AUXILIARIES
- * MIXED HVAC
- * INTERIOR LIGHTS
- * EXTERIOR LIGHTS
- * REFRIGERATION
- * HOT WATER
- * RECEPTACLES
- * VERTICAL TRANSPORT
- * FOOD PREPARATION
- * MATERIAL HANDLING
- * DATA PROCESSING
- * RECREATION
- * SANITATION
- * LAB EQUIPMENT
- * SHOP EQUIPMENT
- * SPECIALTY EQUIPMENT

BUILDING USE ZONES

ISSUE: Many commercial buildings have more than one activity type and usage areas

CRITERIA: Measure energy by end-use for primary building use, and at least total energy use for other use areas. Use measurement plan priorities to allocate remaining channels.

MEASUREMENT REQUIREMENTS

1. ISOLATE HVAC, LIGHTING, OTHER
2. MEASURE ALL PHASES OF UNBALANCED LOADS
3. IMPLEMENT SUM-CHECKS
4. INVENTORY CONNECTED LOADS
5. TOTALS FOR NON-PRIMARY USE AREAS
6. PROXIES FOR FOSSIL FUEL LOADS

MEASUREMENT PRIORITIES

REQUIRED END—USE FOR PRIMARY USE

SUM—CHECKS

TOTALS FOR NON—PRIMARY USE

DESIRED END—USE FOR PRIMARY

END—USE FOR NON—PRIMARY

ZONING FOR PRIMARY

ZONING FOR NON—PRIMARY

MEASUREMENT PLAN DEVELOPMENT PROCESS

1. INITIAL SITE EVALUATION
 - A. IDENTIFY INSTALLATION BARRIERS
 - B. ESTIMATE INSTRUMENTATION COSTS
 - C. ASSESS DEGREE OF END-USE RESOLUTION
 - D. ESTIMATE AUDIT COSTS
2. PNL REVIEW FOR COST/BENEFIT
3. BUILDING CHARACTERISTICS AUDIT
 - A. CONNECTED LOAD INVENTORY
 - B. ARCHITECTURAL AND THERMAL FEATURES
 - C. OPERATION AND OCCUPANCY
 - D. BUILDING ZONING
4. ELECTRICAL SERVICE DOCUMENTATION
5. CIRCUIT CLASSIFICATION TO END-USE
6. IMPLEMENT SUM-CHECKS
7. INVESTIGATE ZONAL ISOLATION
8. ASSIGN LOGGER CHANNELS
9. PREPARE END-USE FORMULATIONS
10. PREPARE SUM-CHECK RULES