BROOKHAVEN BULLETIN

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BROOKHAVEN NATIONAL LABORATORY

Case Study:
A Superinsulated House

How much insulation in a building is enough? Builders of "superinsulated" homes utilize considerably more insulating material in their homes than conventional builders use, thereby reducing the total energy demand to a minimum. In the ideal superinsulated home, the builder uses an amount of insulation that economically optimizes both the costs of construction and energy over a specific time period. DAS mechanical engineer Daniel Hagan and architect Ralph Jones just completed a case study of such a house owned by the Blouin family in South Royalton, Vermont, and found it to be the most efficient of all the energy-saving houses they have studied.

Jones and Hagan have studied other energy efficient homes, like the Brookhaven House, the Mastin double-envelope house, and the Brownell low energy house; they have reported their findings in a series of case studies for the Department of Energy. The case study on the Blouin superinsulated house will be published in February.

"We had a detective job to find out why a superinsulated house works," says Jones. "We examined the components of the house to find what is responsible for its efficient operation." Hagan and Jones went to Vermont for three days in February 1983 to install monitoring equipment including a 22-channel data logger, and a blower door; air infiltration studies using the two zone measurement system of Russell Dietz, DAS, had been performed that January. Sixty days of data was collected from March through April 1983; Jones and Hagan analyzed the data through October 1983.

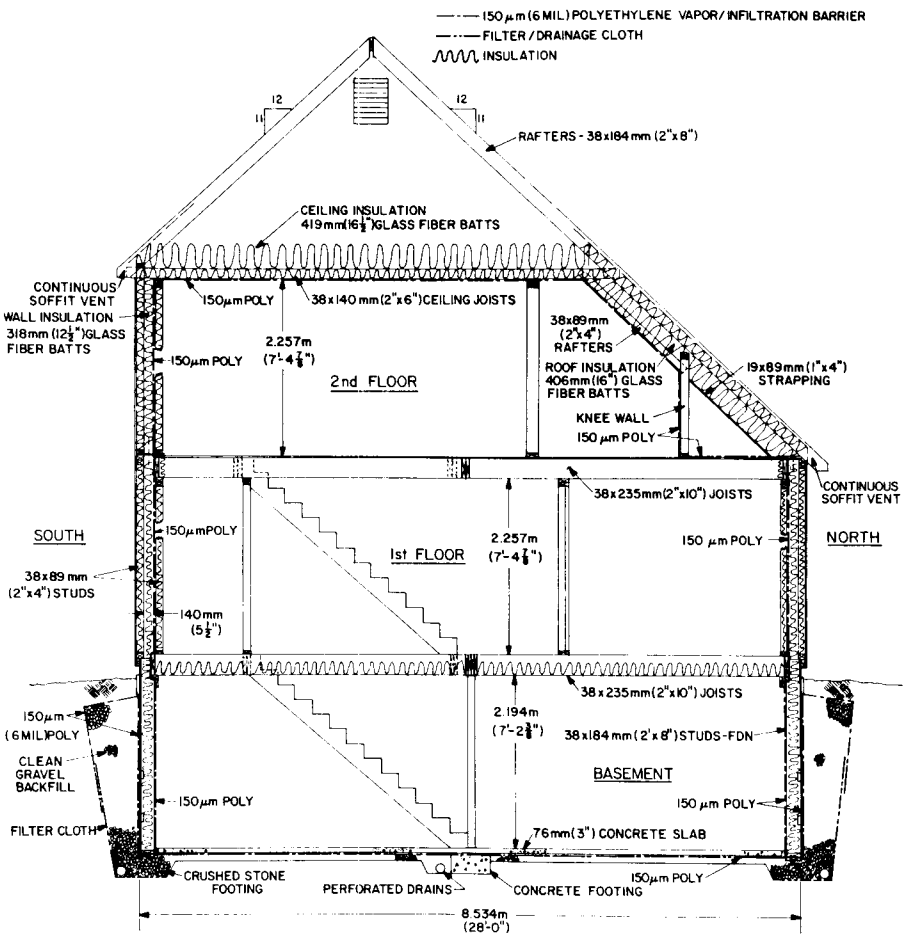
"This superinsulated home works due to the interaction of three main features," explains Hagan. "First, its insulation. A typical new house has 5.5 inch thick walls with a resistance to heat flow value (R-value) of 19. The Blouin house has 12.5 inch thick, R-46 walls. A standard house has an R-27 ceiling. The ceiling in this superinsulated home is R-60." (The Brookhaven House has R-27 walls, and an R-38 roof.) Hagan and Jones found that the ceiling and wall insulation is performing nearly as Scott Blouin, the owner, designer, and a civil engineer, calculated it would.

"Second, air infiltration into the house is controlled by an air-tight vapor/infiltration barrier." Plastic sheeting was sealed on the inside surface of all walls and ceilings containing insulation. It acts as a barrier to moisture penetrating the walls and condensing within the insulation, and as a barrier to fresh air infiltration from the outside. The typical home has a poorly sealed vapor barrier of foil paper which does not block the infiltration of cold outdoor air.

"Since the vapor barrier prevents fresh air from infiltrating into the house, an air-to-air heat exchanger was installed, and forced ventilation fans were recommended." An air-to-air heat exchanger transfers the heat from the outgoing stale air to the incoming fresh air. If the superinsulated house didn't have a heat exchanger, moisture condensation and indoor air pollution could be a problem.

"Third, the house faces south, and 50% of the windows are oriented to the south for solar energy gains. The windows on the east and west sides, and in the back to the north were continuously shuttered during the winter." The windows in the Blouin house are closed with custom-built, insulated window shutters which move laterally on tracks, and seal the window

(Continued on page 2)



Blouin house framing section showing the 12-1/2 inch R 46 fiberglass insulated walls, and the 16-1/2 inch R 60 ceiling, as well as the polyethylene vapor/infiltration barrier.

Hugh Isaacs

Isaacs Receives ASTM Award

Hugh S. Isaacs, metallurgist in DAS, has been named a 1983 recipient of the Sam Tour Award by The American Society for Testing and Materials (ASTM).

Isaacs was honored with the award for his paper "Scanning Reference Electrode Techniques in Localized Corrosion." The paper, co-written with B. Vyas of Bell Laboratories, was published in 1981 as part of ASTM STP 727, Electrochemical Corrosion Testing.

The Sam Tour Award is presented annually to the author or authors of a technical paper, published by ASTM, of outstanding merit in the field of improvements and evaluation of corrosion testing methods.

The American Society for Testing and Materials is a nonprofit corporation formed in 1898 for the development of standards on characteristics and performance of materials, products, systems, and services, and the promotion of related knowledge.

First SSC Workshop on Cryogenics

"I hope the weather holds up, but cryogenic people should be able to take the cold," quipped Laboratory Director Nicholas Samios in his welcoming remarks to the Workshop on Cryogenics for the SSC (Superconducting Super Collider), held here this week, January 17—19. In fact, the weather simply added to the atmosphere at the three-day meeting, attended by over 100 physicists and engineers from laboratories, universities and industries in the U.S. and Europe.

Broken into its basic parts (cryo- and -genic), cryogenics literally means "cold producing." The workshop, then, was concerned with producing cold for the SSC. Cold is a necessary ingredient of superconducting magnets, which, when cooled to very low temperatures — less than 5 Kelvin (about −450° F) — lose their resistance and allow current to flow through them unimpeded. This drastically reduces electrical costs, making possible the idea of a huge accelerator, from 40 to 150 miles in circumference, which could require as many as 9,000 superconducting magnets.

The cryogenics workshop took on a new immediacy last week when Energy Secretary Donald Hodel announced that he would make a decision next summer as to whether or not the Department of Energy would ask Congress for R&D funding for the SSC for fiscal year 1985. To make that decision, he will need a reference design. Explained physicist Bob Louttit, who helped organize the cryogenic workshop at BNL, "The reference design would be something which, in principle, would work and which would provide the Secretary and Congress with a reasonable cost estimate."

The design will be produced by the SSC Reference Design Study Group, which is composed of representatives from all the institutions that would likely be involved in the SSC project. Headed by Cornell's Maury Tigner, the group will examine the options available for the different SSC systems using input from a series of workshops. The cryogenics workshop, chaired by William Fowler of Fermilab, is the first such meeting.

Providing technical assistance to the study group is the SSC Reference Design Advisory Board, chaired by Paul Reardon, BNL's Associate Director for High Energy Facilities. In his welcoming remarks to the workshop, Reardon said, "This is the first SSC workshop, to my knowledge, where we are coming down to brass tacks about how we would approach

(Continued on page 3)

Mort Rosen

At the new Collider Center during the cryogenics workshop, group leaders met with William Fowler, workshop chairman, Fermilab and Bob Louttit, local member of the organizing committee: (seated, from left) Fowler, Paul Mantsch, Fermilab; Ralph Longsworth, Air Products and Chemicals, Inc.; Clyde Taylor, LBL; (standing, from left) Louttit; George Mulholland, Fermilab; Joseph Smith, MIT. The Collider Center, designated Bldg. 1005S, was originally intended as the service building for the CBA. The four-story structure is located to the west of the entrance to the former CBA area. This week's meeting marked the first use of the Collider Center.

Super House (Cont'd)

with refrigerator gaskets. The shutters, however, are performing only 75% as well as they were calculated to insulate.

Hagan and Jones found that less expensive alternatives, such as new glazing products, could be employed as successfully. In addition, they discovered that the shutters on the east, west, and north windows could be removed in the morning, and replaced in the evening with no net loss of heat, but a gain of light to the rooms on those sides.

The 1557 square foot house uses electric baseboard heat; during the 1982-3 heating season, 3420 kilowatt hours in electricity for heat were used, which equals 110 gallons of oil in a furnace that is 75% efficient. The house requires heating to hold the indoor temperature at 65° when the outdoor temperature drops below 44°; the outdoor temperature at which most houses require heat for the indoor temperature to remain at 65° is 65°. Superinsulation has shortened the heating season from nine months to six months, a significant accomplishment in an area having 8,900 degree days per year (Brookhaven has 6,200). Only $5,200 was added to the cost of construction for the additional insulation, window shutters, and air-to-air heat exchanger.

Since the total energy needs of a superinsulated house are so low, the fraction of heat required from heating equipment and solar gains is reduced, and the percentage contribution made by appliance use and human activity is increased when compared to a conventional home. In the Blouin house, human activity and appliance use, as well as heating equipment and solar gains each make about a 25% contribution to the total energy required.

"This house is so efficient that if the Blouins would hold exercise classes in their home, they could eliminate their heating bill," comments Hagan. "If they had added a sun space, they would not have needed any energy from heating equipment," says Jones. "While a greenhouse isn't cost effective because they are paying so little for heat, it has an aesthetic appeal, and it is hard to assign a dollar value to aesthetics."

The Blouin superinsulated house, a two story cross between a salt box and a cape cod, is at best called "nondescript," and at worst labeled "ugly." "Unfortunately, the people who are building superinsulated houses pay so much attention to energy efficiency and savings that they forget about the aesthetics," comments Jones. "But it doesn't have to be this way: a superinsulated home can be designed with more imagination. And in order for this type of house to catch on with builders and home buyers, the house would have to be put in a more pleasing and generally accepted architectural form by an imaginative designer.

"Our housing could be better than it is today," continues Jones. "However, our home construction industry is so fragmented that it is hard to relay information on advances in design, materials, and craftsmanship. These case studies are an attempt by the Department of Energy to get more information out to the U.S. housing industry on affordable, well-built, energy efficient homes."

— Marsha Belford

In Memoriam

Daniel L. Gilliam, Fire Sergeant, died suddenly on January 10 at Brookhaven Memorial Hospital. He was 54 years old. Gilliam had been associated with the Laboratory since August 5, 1963. He was a resident of Patchogue and is survived by his wife, Margaret, a daughter Susan, and a son Daniel.

Artist's rendering of new firehouse.

New Firehouse to Go Up in Spring

The news is so hot, it's on FIRE! And this is no false alarm. The BNL fire department is getting a new $1.8 million firehouse. A concrete and steel, 12,000 square foot fire station will be under construction on the empty site at the northwest corner of Upton Road and Brookhaven Avenue this spring. This non-combustible structure will replace the wood-frame World War II firehouse on Railroad Street. The 44 year old "temporary" Army vintage firehouse, though modified and expanded in 1955 and 1968, cannot be further enlarged to ease overcrowded and antiquated operating conditions.

The proposed facility features four drive-through truck bays which will permit rapid egress to the lightly traveled Brookhaven Avenue extension. The 3400 sq. ft. apparatus room, which can be expanded in the future, will garage all rolling firefighting and rescue equipment. Two recently acquired diesel powered fire trucks are presently housed in ten foot wide bays which can barely accommodate them. As well, the Laboratory's ambulance is currently sheltered in the fire extinguisher maintenance shop, or outdoors when that shop is in use.

Facilities for the 24 BNL firefighters, four captains, one engineer, and one supervisor will include a combined dormitory and classroom, separate locker rooms for men and women, a combination hose drying and training tower, exercise room, a library and conference room, 1760 square feet of storage and 775 sq. ft. of office space.

"The firefighters were involved in the planning from the very beginning," says John Deitz, Fire & Rescue group supervisor. "And we worked with an architect who has designed a lot of firehouses." "The design has all the essential things," adds shift captain Rupert Werner, "And it is much better than what we have."

On Railroad Street, the firefighters presently utilize temporary sheds for storage, and a 200 sq. ft. trailer for maintenance of fire extinguishers, and breathing apparatus. The fire department supervisors now have 600 sq. ft. of office space at police headquarters, a mile away from the firehouse. "The new structure will centralize the functions of the Laboratory's Fire and Rescue group, and provide enough space for it to function properly," says John Iulo, Architecture & Structural Division manager, Plant Engineering.

In addition to improving the efficiency of fire department operations, the relocation and consolidation will considerably reduce maintenance and energy costs. The annual energy cost for the existing building is $4.83 per sq. ft.; the annual energy cost per sq. ft. for the proposed facility will be $2.50. Annual energy savings per square foot will be $2.33, or 48% of the present costs. Energy conscious design was incorporated into the building plans by the architectural firm Schaardt & Fullan of Bellmore.

Schaardt & Fullan are presently developing the contract drawings, copies of which will go out to bidders. Contracts & Procurement will then select the lowest bidding contractor. The Plant Engineering staff members who will review the conceptual design and the construction standards are Peter Boyle, Paul Blacher, John DiNicola, and Benjamin Rifkin. The firehouse should be operational by the spring of 1985.

The one story building with its mezzanine and basement will occupy 40,000 sq. ft. of land, and will require 1,000 cubic yards of concrete, and 50 tons of steel. One thousand square yards of blacktop will be used for the 14 staff, seven official, and four visitor parking spaces, and the training and access roads. Less than 100 construction workers will be involved at the project site at any one time.

Upon opening the new facility, the old firehouse will be demolished. "A number of people have suggested that we set the old building on fire, and have our firefighters put it out for practice," says Iulo. However, the old firehouse will be razed by more conventional methods.

—Marsha Belford

Adding 109 to 452

They weren't messing around when they moved building 109, a World War II Army enlisted men's mess. Pictured is the moving of the shortest segment of 109 on Tuesday, December 20 by an independent house mover, supervised by (far right) Tony Scheschowitz, Plant Engineering. That modular piece was transplanted to the back court of building 452 on Bell Avenue. Five street and traffic signs had to be dug up and then replaced, so that the truck hauling the one story wood frame section could make the turns at the intersections of Rochester Street with Brookhaven Avenue, and with Technology Street. Three other sections of building 109 were added to the west side of 452.

Roger Stoutenburgh

Building 109 was formerly used by Photography & Graphic Arts for continuous film processing of bubble chamber neutrino studies, and for color processing. Continuous film processing ceased with the bubble chamber in 1980, and color processing has been moved to building 197. The four parts of building 109 moved to 452 will be used for receiving and stocking the Plant Engineering operations and maintenance shop. Since the central one and a half story core of building 109 is not needed and is too expensive to move, it is slated for demolition pending DOE approval.

A vintage World War II empty liquor bottle was found at the old site of building 109. The clear glass one pint flask has been added to the Camp Upton historical collection. The only remaining WW II mess hall is building 134, which now houses Fiscal, Plant Engineering, and Public Relations.

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No More Green Lights

Increased concern about the security of Federal installations led to the tightening of access controls at the Laboratory on December 15. Since that time, all those who wished to enter the site have been asked for identification. Now, the Laboratory administration has decided to formalize some security measures.

As of Monday, January 23, free access to the Laboratory will be discontinued, and the gate lights will stay on red until further notice.

All cars will be checked for BNL bumper stickers. The occupants of those cars without stickers will be asked for ID. Both the 1983 and 1984 bumper stickers are valid for the present.

Also beginning January 23, although ID's will not be requested every day, they will be checked on a random basis and employees should keep them handy.

Security requirements dictate that the schedules for the north and south gates be restricted, as follows:

Gate	Enter	Exit
Main	24 hours/day	24 hours/day
North	8:00-9:00 a.m. Closed for entry in p.m.	4:30-5:30 p.m.
South	No entry at any time	4:30-5:30 p.m.

SSC Workshop (Cont'd)

the design and fabrication of a major SSC system such as the refrigeration/cryogenics plant, the size of which is way beyond our present conceptions....We want to know, 'Is there a difference in how you would approach the cryogenic system for the three different ring sizes we are looking at?'...The results of the workshop will be important, even essential, ingredients to the reference design effort that is now getting under way."

In the talk that followed, "An SSC Overview," Maury Tigner reviewed the SSC concept and its history since 1978, saying, "The SSC will allow us to enter a domain of the material world we have not entered before." In the accelerator's development, he said, "Cryogenics is a key technological and economic issue."

Following these introductory remarks, three presentations outlined the characteristics of machines operating at four different magnetic field levels and the cryogenics required to cool each of them. The field option ultimately chosen for the SSC will have a direct bearing on the size of the accelerator: the higher the magnetic field, the smaller the ring.

The balance of the workshop was devoted to smaller groups where the participants explored specific topics. Summaries of the groups' findings were presented at the close of the workshop and will be used by the study group to help finalize the reference design.

Contest! Contest!

Three boxes of choc'late will be given
To three BNL writers in res'dence
Who by their love romantic are driven
To write Valentine poems as ev'dence

Your grand passion may find
its expression
In a two verse couplet, to a fourteen
Line sonnet; if you shun convention,
Rhythm *sans* rhyme may say best
what you mean.

Submit by Friday February three
Your poetry to Public Relations,
And their lit'rary editors will see
Whose love's labors are the
best creations.

No matter the shape and sound of
your stanza,
Enter in the Bulletin bonanza!

(The best entries will be published in the Bulletin of February 10).

Arrivals & Departures

Arrivals

John R. Becan ..... Saf. & Env. Prot.
Hans R. Moser ..... NSLS
Alice J. Pitt ..... Saf. & Env. Prot.

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:

Janice DePass ..... DNE
Robert J. Edwards ..... Accelerator
James L. Ivett ..... Medical
Hugh P. Yerry ..... Saf. & Env. Prot.

Cooking Exchange

Samosas, dahl, sindighosht and fish in yogurt are some of the authentic Indian specialties which will be prepared at the next meeting of the Cooking Exchange on January 25.

Exchange meetings are held every other Wednesday in the Recreation Building between 12:30 and 2:30 p.m. For a $1 admission fee, those attending receive copies of the recipes being demonstrated as well as a sampling of each completed dish. Babysitting is provided at 50¢ per child.

This year's Exchange chairperson, Dee Polychronakos, will answer any questions about this popular BERA activity. She can be reached at 744-3578.

Call for Crafts

The Art Committee reminds all BNL artists that entry forms for the BERA Members Craft Exhibit are due by January 27 at the BERA Sales Office. The Committee will accept two works from each exhibitor (not one, as stated earlier) and a form is to be completed for each entry. The show will open on February 6. For information, or entry forms, call Ext. 2343 or 4379.

Petition: a list of people who didn't have the nerve to say "no."

Power: to know, and to know that you know.

Praise: what you receive when you are no longer alive.

In the AGS Pete Bilski presents Rigger Group Leader Stan Carde (second from left) with a leadership award recognizing him as 1983 Leadman of the Year in Plant Engineering's AGS Rigging Group. Group supervisor Nick Cipolla said the award was "a group decision, to show appreciation to one of their own." Carde is the first recipient of what is planned as an annual award as the certificate states, "in recognition of kind words, thoughts and deeds among fellow workers throughout the year." Also on hand for the presentation were (left) Roger DePuy and (right) Kevin Barnes, who, with Bilski, form the Awards Committee.

CREF Values

January	57.59	February	58.93
March	60.75	April	65.12
May	65.07	June	67.12
July	65.43	August	66.13
September	$67.02	October	$65.95
November	$67.06		

December $66.84

NYC Train Trips

The Hospitality Committee is planning two group railroad trips to the city in the next two weeks.

One is a special on Saturday, January 28, leaving at 8:31 a.m. Round-trip fare is $6.50, and must be received no later than Wednesday, January 25. Reservations will be accepted on a first-come, first-served basis.

The second is a regularly scheduled trip on Wednesday, February 1, leaving at 7:55 a.m. The round-trip fare is $5.00, and must be received by Thursday, January 26. Refunds will be made only if cancellations are received by the Monday morning preceding the trip.

Children under five years ride free on both trips. All departures are from the Patchogue LIRR station. To reserve a ticket send your fare through the U. S. mail to BNL, P.O. Box 322, Upton, New York 11973. Checks or money orders should be made payable to BNL. Do not send cash. Put the date of the trip, your telephone number and BNL life number on the check. Tickets will be given to you on the train.

I.B.E.W. Meeting

Local 2230, I.B.E.W. will hold its regular monthly meeting on Monday, January 23, at 6 p.m. in the Knights of Columbus Hall, Railroad Ave., Patchogue. There will also be an afternoon meeting at 2 p.m. for shift workers in the Union office at 31 Oak Street, Patchogue. On the agenda will be regular business, committee reports and the president's report. Please note date.

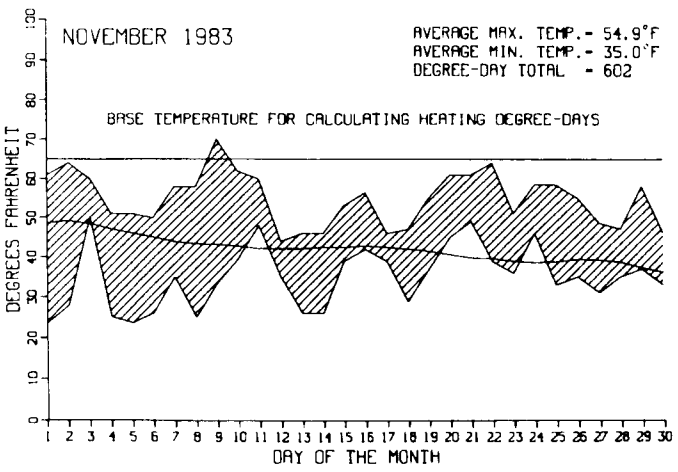
Camera Club

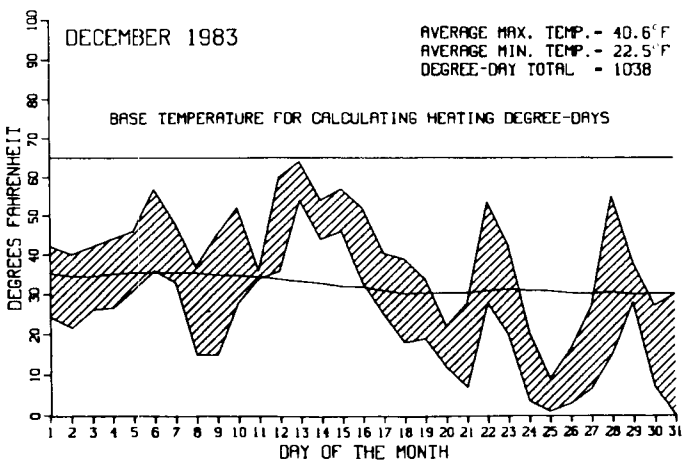
The BNL Camera Club meets on the fourth Thursday of each month. Meetings start at 5:30 p.m. and are held in the Recreation Building. At the January 26 meeting, a program of 1984 activities will be developed.

BAFFA Concert

Bay Area Friends of the Fine Arts (BAFFA) will present a recital featuring James Gemmell, piano, and Helen Armstrong, violin, on Sunday, January 29 at 3 p.m. in the Congregational Church, 95 E. Main St., Patchogue. Tickets at $8 each (tax deductible contribution) are available from the following BNL staff members: David Alburger, Ext. 4554; Manny Hillman, Ext. 4470; Mary Kelley, Ext. 4230; Charles Meinhold, Ext. 4209; and Glenn Price, Ext. 3336.

Degree Days at BNL





Cafeteria Menu

Week Ending January 27

Monday, January 23

Potato leek soup	(cup)	.65
	(bowl)	.75
Beef stroganoff on egg noodles		1.95
Kielbasi & sauerkraut		1.90
Hot Deli: Pastrami	(bread)	1.85
	(roll)	2.00

Tuesday, January 24

Beef barley soup	(cup)	.65
	(bowl)	.75
Stuffed turbot Florentine & 1 veg.		1.95
Turkey chow mein on rice		1.85
Hot Deli: Tacos		1.90

Wednesday, January 25

Navy bean soup	(cup)	.65
	(bowl)	.75
Stuffed pepper & 1 veg.		1.85
or w/spaghetti		2.15
Corned beef and cabbage		1.90
Hot Deli: Baked ham	(bread)	1.85
	(roll)	2.00

Thursday, January 26

Dutch green bean soup	(cup)	.65
	(bowl)	.75
Salisbury steak & 1 veg.		1.85
Tuna noodle casserole & 1 veg.		1.85
Hot Deli: Chili dog		1.90

Friday, January 27

Seafood chowder	(cup)	.65
	(bowl)	.75
Veal patty scallopine w/egg noodles		1.95
Shrimp & fries w/cole slaw		2.15
Hot Deli: Italian style meatball hero		1.95

Bowling

Pink League

S. Asselta bowled a 211, E. Kristiansen 208, M. Apelskog 192, D. Haugland 169, K. Kissel 175.

Red/Green League

A. Pinelli rolled a 235, K. Riker 221, E. Sperry 212, J. Morris 209, D. Adams 201, H. Marshall 201, G. Meinken 200.

White League

The Draftecs are the winners of the first half. High games were bowled by J. Griffin 208, K. Riker 196, J. Austin 190, P. Lebitski 186, J. Pinelli 178, M. Picinich 176, M-G Meier 196/189, J. Mayeski 227.

Purple League

The Pinsplitters are the winners of the first half.

Volleyball

Mixed League
as of 1/16/84

A Division

Semi Tough	3-0
Dinkers	2-1
EPO's	2-1
Up Fagrabs	2-1
Teddybares	1-2
Mixed Ups	1-2
TNT	1-2
Nuts and Bolts	0-3

Dinkers were winners of the first third.

B Division

Phoubars	3-0
Servers	3-0
Bottoms Up	3-0
Chungas Revenge	2-1
Screwballs	1-2
CRAW	0-3
Excitons	0-3
Quirks	0-3

Phoubars were winners of the first third.

Open League
as of 1/11/84

Phoenix	32-0
Rowdy Radicals	26-10
Half Lives	12-24
Mana	9-23
Generic	5-27

In Stormy Weather

The following radio stations will announce Laboratory closings and delayed openings in the event of storm conditions.

Station	Area	AM	FM
WALK	Patchogue	1370	97.5
WBAB	Babylon	1440	102.3
WBLI	Patchogue	——	106.1
WLIX	East Islip	540	——
WGLI	Babylon	1290	——
WGSM	Melville	74	——
WHLI	Hempstead	1100	98.3
WLNG	Sag Harbor	1600	92.1
WRCN	Riverhead	——	103.9
WRIV	Riverhead	1390	——
WSBH	Southampton	——	95.3

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants. In keeping with the Affirmative Action plan, selection decisions are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Personnel Placement Supervisor, Ext. 2882.

LABORATORY RECRUITMENT: Opportunities for present Laboratory employees.

1998. SECRETARIAL POSITION - Requires AAS degree in secretarial science or equivalent, the ability to take shorthand and knowledge of general office procedures. Contracts and Procurement Division.

1999. FIREFIGHTER (Two openings) - Previous substantial firefighter experience is required. Completion of New York State EMT course and possession of training certificate is highly desirable, if not, completion of course within one year is required. Must be willing to work shifts at the completion of a thirteen week training period. Safeguards and Emergency Services Division.

Autos & Auto Supplies

GERMAN AUTO PARTS - wholesale prices on new parts for VW, Porsche, Audi, BMW, and MB. Augie, 289-4211.

72 JEEP COMMANDO - 4x4 AT tires, hard & soft top, rebuilt V-6 engine, clean, new paint. Pat, 473-8716.

FRONT BUMPER - 75 Chevy Camaro, good cond., best offer. Jerry, Ext. 2907 or 758-7365.

72 VW SUPER BEETLE - body very good cond., new paint, interior excel., $325. Toni, Ext. 5257.

70 FORD PICKUP - 302 V8, 2 spd., w/cap, am/fm cassette w/speakers, equalizer, 2 snows. Jack, 727-0499 after 6 p.m.

73 SUPER BEETLE - new engine, transmission and battery, excel. transportation, $800. 286-0259.

CHEVY VAN PARTS - seats, windows, tires, rear end, driver lights, etc. Frank, Ext. 4823 or 585-7861.

72 VW SQUAREBACK - runs well, $750. 286-1183 or 924-7238.

83 BMW - 320i Luxus, black/beige, a/c, alloys, 27K hwy. mi., $13,900. 742-2180.

67 GMC PICKUP - 6 cyl., good running cond., good on gas, $600. Bill, 286-8554.

80 TOYOTA CELICA - excel., loaded, all options included, moon roof. Tony, Ext. 3194.

55 FORD ENGINE - and trany, 272 V8, 4 bbl., auto., can demo. Tom, Ext. 4664 or 929-3566.

81 HONDA CIVIC - 1,500 SW, 5 spd., standard, roof rack, new brakes, excel. cond., $4,200. 757-5399.

72 YAMAHA MX - 360cc, many trick items, electrical problem. 289-8988 after 6 p.m.

77 AMX HATCHBACK - 8 cyl., auto., p/s, good cond., $1,650. 281-8538 after 6 p.m.

83 YAMAHA EXCEL III SNOWMOBILE - excel. cond., new skis, $2,200. Bob, Ext. 4672 or 929-4753.

INTAKE MANIFOLD - new, aluminum, for 427, w/rectangular ports, $90; cast iron manifold, oval ports, $10. John, Ext. 3869.

62 OLDS 88 - 4 dr., ht., restorable or parts car, make offer. George, Ext. 2022.

BENCH SEAT - for 76 Datsun truck, blue, very good cond., $20. 286-8448.

68 PLYMOUTH VALIANT - 6 cyl., 3 spd., standard 4 dr. sedan, good cond., $475. Rick, 727-7626 after 5:30 p.m.

71 CHRYSLER NEWPORT - 3 new tires, many new parts, best offer. Rich, Ext. 4363.

78 HONDA/MC - 400 cc Hondamatic, new battery, custom seat, crash bar, excel. cond., $600. Ext. 2172 or 744-4386.

79 HONDA STATION WAGON - 4 speed, reg. gas, mint cond., $2,800. 289-8267 eves.

77 FORD PICKUP - short bed, 6 cyl., rollbar, white rims, push bar, needs motor work, $1,950. Eddie, Ext. 2021.

81 CHEVY 1/2 TON PICKUP - diesel, 45,000 miles, with cap, $5,000. Bud, Ext. 3083 or 281-6372 after 6 p.m.

80 OLDS CUTLASS - 4 dr., diesel, a/t, p/s, p/b, am/fm casette, immaculate cond., 29,000 miles, $3,500. Al, 744-0354.

RADIALS - (2) P185/75R13, 6,000 miles remaining thread, whitewalls, $20/pr., Tom, Ext. 4664 or 929-3566.

73 FORD LTD WAGON - new carburator, alternator, water pump, $800, negotiable. Neil, 924-6906 after 7 p.m.

69 COUGAR - best offer over $100. 929-6961.

78 OLDSMOBILE WAGON - 81 engine, nine passenger, completely unrusted, new tires, stereo, air, power, $3,500. Robert, Ext. 3401 or 744-6229.

70 AMC AMBASSADOR - 4 dr., a/c, p/s, auto., new front tires, snows, new Diehard battery and brakes, runs well, clean, $450 firm. Betty, Ext. 3681.

73 TOYOTA CORONA - 4 dr., runs, needs work, best offer. Frank Thomson, Ext. 7684.

74 AUDI FOX - 2 dr., sunroof, am/fm, $1,250. Ext. 4609 or 472-0510.

74 CHRYSLER NEWPORT - $300. J. Guthy, Ext. 4411 or 924-8287.

TIRES - (2) snow-studded, 78-15, w/rims, $55. Paul, Ext. 4309.

76 CAPRI - 4 cyl., 4 spd., am/fm, cass., very good cond., $1,400. Ext. 3242 or 7192.

74 DODGE GOLD DUSTER - runs good, $600. Perez, Ext. 3531.

TIRES - (4) Goodyear poly/steel radial, P195/75R14. Chris, Ext. 3919.

66 CHEVY NOVA - SS, runs excel., looks good. Dom, 363-6673.

71 VW - semi-auto., recent paint, 5,000K on rebuilt, many new parts, mint cond. in and out, must see, $1,750. Ed, 475-1598.

74 FORD PINTO - runs well, 4 spd., a/c, $350. Ext. 4047.

79 DATSUN 280ZX - coupe, silver, GL package, 55K mi., excel. cond., $7,800. 736-3573 eves.

78 TOYOTA COROLLA LIFTBACK - must sell, good cond., a/t, am/fm cassette. Pat, Ext. 4628 or 286-8490 after 6 p.m.

74 CORVETTE STINGRAY - T-roof, 4 speed, white, p/b, p/s, p/w, tan interior, low mileage, mint cond. 286-2221 after 3 p.m.

81 210-DATSUN HATCHBACK - excel. cond., $4,500. Ext. 2705 or 298-9581.

71 VW BUG - front end damage, good engine and trans., best offer. 360-3808 eves.

74 VEGA WAGON - new steel sleeve engine, 9,000 miles, snows, $700. Ext. 2486.

Boats & Marine Supplies

PROPELLER - 3 blader, right hand, 17" pitch, 14" dia., 1-1/4" bore, bronze, $40. Walther, Ext. 4309.

Miscellaneous

COLOR TV - G.E., cable ready, 25" console, excel. cond., asking $350. 584-7544.

ICE SKATES - boy's sizes 2, 4, and 6, girl's size 1, $10/pr; girl's bike, 24", 10 speed, new condition, $60. Richie, Ext. 2175 or 734-7342.

ELEC. STOVE - $30; Philco refrig., $20; Sears stereo, $75. 924-0277.

MOTORCYCLE HELMETS - one green, one black. O'Kula, Ext. 4167.

HAAS AND SOHN COAL STOVE - model 121-12U, brand new, in crate, $350. 929-6013 or 929-4678 eves.

FUR COAT - off white, new, $150. Linda, Ext. 7745.

CHAPPEE COAL STOVE - 2 yrs. old, good cond., $225; J.D. Brauner butcher block table, 48" x 31", $75. 928-4023 eves.

MEDITERRANEAN BEDROOM SET - (Thomasville), 2 night stands, triple dresser w/2 mirrors, king-size headboard, 6' armoire, mattress/box spring, excel. cond., $1,500. 286-1709.

FOLDING BED - double, like new, used 4 times, good for company, excel. cond., orig. $135, asking $70. Harry, Ext. 7578.

STADIUM BLANKET - pure wool, $15; (4) ladies coats, size 10-12, tan (brown pile lining) $30; blue tweed, $10; blue suede, $25; gold wool, $10. Claire, 281-2002.

TURNTABLE - dual 1215S, works; T.V., Zenith 19", B&W, make offer. Ray, Ext. 4479.

TROMBONE - 8 yr. old, Bundy beginner model, good cond., best offer over $125. 475-4382.

CAMERA - SLR Minolta SRT 201, with case and 50 mm lense, $100. Tony, Ext. 3194.

CRADLE SWING AND SEAT - combination Graco, in excel. cond., $30. 941-4328.

RAMP - wheelchair, for mobile home, wood, can be modified, $100. Ray, Ext. 4479.

VICTOR ADDING MACHINE - $15; Escort typewriter, $50, both like new. Don, Ext. 2408 or 472-1243 after 6 p.m.

LIVING ROOM SET - 2 couches, 2 matching oak tables, contemporary, $600; Kirby vacuum cleaner, all attachments, power head, $200. 727-7626.

DINING ROOM FIXTURE - wrought iron and wood, six lights, $20. Lois, Ext. 4904 or 929-4753.

MINOLTA 35MM CAMERA - Hi-Matic E, w/flash and case, $50; Kodak movie camera, XL340, w/case, $50. 928-4023 eves.

GUITAR - w/instruction booklet, $30; 35mm Autorefex T Konica, $100. J. Nolan, Ext. 3084 or 744-1234 after 6 p.m.

REFRIGERATOR - non-frostfree, brown, $50. Frank, Ext. 2022 or 399-4480.

ROCKING CHAIRS - (2) large matched walnut, excel., $150; antique hand carved (Monks) chair, $375. Ext. 5139 or 348-7884.

FAUCET - plus waste assy., Decor 4881, goldtone, never used, new, $60. L. Kopp, Ext. 2265.

JUKE BOX - 100 selections, 1950, Wurlitzer, $250; 30 gallon pump tank, glass lined, $25. George, Ext. 2022.

35MM CAMERA - Yashica, excel. cond., $75; camera tri-pod, heavy duty, Husky IV, like new, $75. 286-8448.

DESK & CHAIR - (4) drawer, formica, wood grain, 48 x 18, $50. Joyce, Ext. 3801 or 289-5770 after 6 p.m.

FLUTE - Bundy, good cond., ideal for beginner, $60. 878-9418 after 4 p.m.

KITCHEN SET - table, imitation butcher block formica, two leaves, six chairs, excel. cond., $150. Karen, Ext. 2950.

FREEZER - Sears 12 c.f., upright, excel. cond., under maintenance agreement, $125. 924-5418.

STEAM & DRY IRON - G.E., excel. cond., $10; folding chair, silver/gray, w/vinyl seat, like new, $7. 473-7667.

DRUMS - 55 gallon for kerosene, $15/ea. Ext. 7505 or 689-8605.

STEREO - amplifier-receiver, Pioneer SX636, $90; dresser, colonial style, maple, 50"L x 18"W x 30"H, $100. Ext. 2041.

PROPANE HEATER - wall mounted, 15,000 BTU, blower & thermostat, excel. cond., cost $340, sell for $100. Harry, Ext. 3783.

RATTAN TABLE - w/glass top, 39 in. dia., good cond., for patio, $40. 929-3566.

FIREPLACE INSERT - Dare IV, coal/wood stove, 100,000 BTU'S, used one season, paid $1,295, sacrifice for $595. 654-5888.

MAGNAVOX STEREO - console, am/fm, w/remote speakers, good cond., walnut cabinet. Joe, Ext. 2575.

PORTABLE CLOSET - stores clothing, easily assembled and disassembled, 61x36x22 inches, originally $40, asking $15. Allen, Ext. 4473.

WATER PUMP - deep well, 1 HP, $50. Jay, Ext. 2022.

CROSS COUNTRY SKIS - 170 mm, poles, size 41 boots, $30; stereo record player, 3 speed, w/speakers, $25. 286-1097.

FUR COAT - Spanish lamb, off white, new, $160. Linda, Ext. 7745.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Sale

MEDFORD - 2-3 bdrm., 1-1/2 baths, 2 car garage, 3/4 acre. Ext. 2486 or 325-0681 after 6 p.m.

BROOKHAVEN HAMLET - 4 bdrm., split-level, 2 car attached garage, excel. cond., rec room w/fpl., oak floors, city water, well insulated, walk to schools, privacy on wooded 1.25 acres, for appt. call 286-0436.

DORLOO, NEW YORK - 6 wooded acres, w/30' trailer, stream and pond, access to power, water, sewage, telephone, year round access, excel. hunting, $13,500. 744-4047, 6-10 p.m.

For Rent

MASTIC - 2 rms, utilities incl., working couple. 281-6099.

WADING RIVER - one bedroom apartment, unfurnished, near water and W.S.P., $400 pays all. CH 9-7136.

Car Pools

HUNT. STA. - Huntington, 8:30-5:00, 4 drivers seeking a 5th. Tony, Ext. 7214 or Herb, Ext. 3611.

MASSAPEQUA/FARMINGDALE - points west near Southern State Parkway, leave from vicinity exit 32 SS Pkwy. Plotkin, Ext. 4717.

RIDERS WANTED - for East Hampton-Sag Harbor car pool. Amy, Ext. 2383.

BROOKLYN/MANHATTAN - start or join existing pool. Neil, Ext. 3865.

Wanted

HOME FOR GERMAN SHEPHERD - female, one year old. 924-0277

POOL TABLE - deck shuffle board, pin ball, to donate to non-profit Civic Assoc. Ext. 3642.

DOCTOR'S OFFICE SCALE - working. Bob Tallon. Ext. 4547 or 473-3987.

SKIERS - Jan. 22, Windham, N.Y., Call M.G., 929-4437.

FLYWHEEL & CLUTCH - to fit 64 Buick V-6 eng., pressure plate Borg & Beck 10-1/2" #361472. Bob, Ext. 5286.

FENDER LF - 55 Ford sedan or SW. Tom, Ext. 4664 or 929-3566.

LONGTERM DAY CARE POSITION - at our home in Rocky Point, for new born, reliable, mature, starts in Feb. 744-1206.

HOME - for adult cat, beautiful Persian Calico. 736-3573 eves.

Classified Ad Policy Deadline is 4:30 p.m. Friday for publication Friday of the next week.