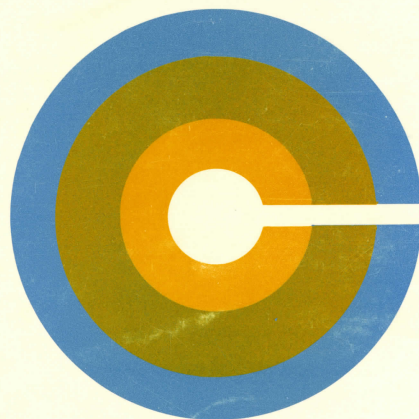


**REPORT  
on the  
PROGRAM REVIEW  
of the  
CARPENTRY/BENCHWORK & JOINERY PROGRAM**



**Cariboo College**

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**REPORT  
on the  
PROGRAM REVIEW  
of the  
CARPENTRY/BENCHWORK & JOINERY PROGRAM**

**OFFICE OF INSTITUTIONAL RESEARCH & EVALUATION**

**January, 1989**

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## SUMMARY

Largely due to the economic slowdown in the construction industry since 1982, the Carpentry/Benchwork & Joinery Program has suffered a substantial decline in student enrolment and placement. Although economic recovery is now underway, the program is still experiencing enrolment problems, and is not widely recognized throughout the construction industry. As well, the relatively low enrolments over the past few years have resulted in exceptionally high costs per student graduated. It is apparent that the program in its present form can no longer be considered viable.

The real issue that the College must address is whether it should persevere with the program in its present form in the hope that the economic upswing will create a demand for basically trained carpenters, whether it should cut its losses and terminate the program, or whether it should radically revamp the program. (The industry representative on the Carpentry Program Evaluation Committee offers persuasive evidence of better economic times in his contribution to the "Job Opportunities Projection" section on pages 8-9 of this report, and opposes termination of the program.)

The recommendations of this Committee are that the College should either (a) switch the existing pre-employment training program in Carpentry from a continuous intake to a six-month, block intake format (November-April, or as appropriate), (b) suspend the program for a year to allow for the construction of a more ambitious open-entry program with a curriculum geared not only to pre-employment training but to all levels of apprenticeship (as is currently under design at the B.C.I.T. Curriculum Department), or (c) explore the possibility of subsuming the existing Carpentry Program into a Civil Engineering Technology program like that at Okanagan College or a Construction Engineering Technology program like that at the College of New Caledonia.

If option (b) or (c) is selected, the Committee recommends the on-going use of the Carpentry facility during curriculum reconstruction for auxiliary offerings such as Stage Carpentry, Upholstery and Extension Service courses (for list see page 9). The Committee recommends the retention of all the Carpentry toolroom equipment and the major part of the Carpentry facility, both of which would be extremely expensive to re-establish, whatever form the Carpentry Program takes in the future.

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THE PROGRAM EVALUATION COMMITTEE

(December 15 and 16, 1988)

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Chairperson,  
Computing

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## INTRODUCTION

The Program Review process was undertaken for the Carpentry/Benchwork & Joinery Program over the period August, through December, 1988. Initial data were solicited from the Divisional Director, Trades & Industrial Training, in August 1988. Questionnaires were mailed to former students on October 4. Second mailings took place on October 25. Employer and Advisory Committee questionnaires were mailed October 5. The faculty survey was distributed and current student surveys were administered on October 31. Telephonic contact was made with non-respondents in the former student, advisory and employer groups between November 8 and November 10. The cut-off date for all responses was November 24. The Program Evaluation Committee met to sift and deliberate the data on December 15 and 16, 1988.

## BACKGROUND

Carpentry/Benchwork & Joinery started in 1972 as a five month pre-apprenticeship program under the instruction of John Whittle. In 1975, two lines of apprentice training and two more instructors were added. The pre-apprentice training continued during this period. In 1982, as a result of a struggling economy, pre-apprentice training was discontinued. In 1983, with the implementation of the Training Access (TRAC) delivery system, Carpentry became a self-paced, student oriented program. As of 1985, the apprentice training program was discontinued, so that TRAC is currently the only carpentry training scheme in place at Cariboo College.

Initially, the program was five months pre-apprentice training, as laid down by Department of Labour curriculum in co-operation with the Provincial Trade Advisory Committee. With the start of TRAC and the CBVE delivery system, the average time has become approximately six months. The curriculum is a standard provincial format, developed by the Ministry of Advanced Education and Job Training and Provincial Trade Advisory Committee for Carpentry and Benchwork/Joinery. It is used throughout the province at all colleges involved in the delivery of training for this trade.

## METHODOLOGY

A wide variety of methods and materials was used to conduct the review process.

Standardized Program Review questionnaires were sent to Carpentry/Benchwork & Joinery Program Advisory Committee members, employers, faculty, program graduates, and current students.

Dr. Earl Bloor, Divisional Director, Trades & Industrial Training, and John Whittle, Instructor, Carpentry provided historical and descriptive data on the program, including:

Course outlines for the following:

- Common Core
- Occupational Core
- Carpentry Specialty
- Benchwork/Joinery Specialty

Pass and attrition figures for Carpentry Program, 1983-88

Utilization rates for the Carpentry and other trades programs, 1987-88.

The Registrar's Office provided the following:

Carpentry/Benchwork & Joinery Admissions Package.

## DISCUSSION

No responses were received from the newly reconstituted Carpentry Advisory Committee, although three members telephoned to say that they could not complete the questionnaire as there had been no Advisory Committee meetings.

In spite of second mailings and telephonic contact, employer response was very poor, at 33% or 2 out of 6.

The continuous intake format of the program militated against recording a high rate of current student responses; nevertheless, 10 of the 14 students registered in the program were surveyed on October 31.

The Former Student response rate was 21 out of 66, or 32%. Obtaining a high rate of return from former students was complicated by the cyclical nature of the economy and by regional fluctuations in demand for carpenters, both of which have had the effect of dispersing former Carpentry students far and wide. The Former Student response rate is within the normal range of former student responses for other programs so far reviewed, and compares favourably with the 18% response rate obtained from former Electronics Program students in 1986.

## QUESTIONNAIRE DATA

The following trends were detected in the questionnaire responses:

### Employer Survey

- Based on two employer responses, there is satisfaction with the level of training received by graduates of the program.
- Responses to the questionnaire do not reflect the opinion of the construction industry as both respondents were from the joinery millwork area.
- The lowest mean scores were in the areas of organizational skills and problem solving as competencies observed in program graduates, yet even in this area, there was no great dissatisfaction.

### Faculty Survey

- With only one (1) instructor in the program, it was noted that little time is available for program development or for liaison with the industry.
- Lack of support staff has resulted in the instructor being responsible for the tool inventory and maintenance.
- Concern was expressed about certain aspects of the Common Core curriculum: some of the test questions are not relevant to the material covered, and the Physics component needs to be re-written.
- Dissatisfaction was expressed with the fact that the TRAC format had never been fully explained to faculty who were supposed to instruct within its strictures.

### Current Student Survey

- The present students are very satisfied with the instruction they receive.
- They expressed distress that enrolling in Carpentry alone of all the trade courses means suspension of U.I.C. because of the perceived lack of demand for carpenters.
- Students are not very familiar with the availability of career advising notes and tapes via the Counselling Department.
- Concerns were expressed about the noise level in the Learning Resource Centre.
- Students expressed great concern about the lack of advertising and of public awareness about the program, and about the need for more students.
- They commented on the low number of female students in the program.

### Former Student Survey

- Former students indicated that employment opportunities are available, although in many cases not full-time. However, 70% - 80% of them appear to have obtained training-related employment.
- They indicated that the content of the program has prepared them well for the employment.
- They indicated some concerns about the clarity of objectives and appropriateness of evaluation in the Common Core curriculum.
- They expressed a need for greater training in the areas of written and oral communication skills.
- In terms of upgrading training, there is an interest in Blueprint Reading for Industrial Sites, Transit & Level Operation, Business Management, and Construction Estimating and Project Management.

QUESTIONNAIRE DATA

Carpentry/Benchwork & Joinery

The categories and quantities of responses are tabled below:

Recipient	# Sent	# Completed and Returned	% Return
Advisory Committee	9	0	0%
Employers	6	2	33%
Faculty	1	1	100%
Students: Current	10	10	100%
Former	66	21	32%
	—	—	—
TOTAL	92	34	37%
	—	—	—

Returned by Post Office (Former Students)	14	21%
Non-Respondents	31	47%

As at November 24, 1988

## ADMISSIONS DATA AND PERFORMANCE STATISTICS

### Admission Requirements:

The admission requirements for the Carpentry/Benchwork & Joinery Program are currently as follows:

B.C. Grade 10 or equivalent  
Canadian Citizenship or Landed Immigrant status  
Reading and math pretest - CAT 17.

When program intake was controlled entirely by the Ministry of Labour, admission was on the basis of Grade 10 minimum throughout the Province. However, most applicants had Grade 12 and were accordingly selected as more likely to succeed in the program. Currently, the College requires Grade 10 minimum (Grade 12 preferred), and admits on a first come first served basis, subject to completion of the CAT 17 pre-test with a score of Grade 10 or better.

### Program Capacity/Program Demand over past five years:

Program capacity: 20 at any one time; 30-40 per year

Demand for the program has been greatly affected by the state of the economy over the past five years. Also, when intakes were controlled by the Ministry of Labour, classes were always full and not affected so much by the economy; however, the dropping of C.E.C. sponsorship in the mid 80's has led to low enrolment patterns and utilization rates over the last few years (see APPENDIX B). Currently, the Federal Department of Indian Affairs, the Provincial Ministry of Social Services and Housing, and the Workers' Compensation Board sponsor students on an occasional basis.

<u>Year</u>	<u>Applicants</u>	<u>Admissions</u>	<u>Graduates</u>
1983/84	34	34	11
1984/85	19	19	11
1985/86	15	15	7
1986/87	19	19	4
1987/88	19	19	7
1988/89	14	14	

### Gender Ratio (female to male):

Very few females are attracted to the Carpentry Program: a search identified only one female participant in the program since 1983. This low female participation rate corresponds closely to the national situation, where males hold 99% of carpentry and related jobs, as opposed to females' 1%.

Attrition over past five years:

<u>Year</u>	<u>Enrolment</u>	<u>Entered Workforce (DNC)</u>	<u>Dismissed</u>	<u>Withdrew</u>	<u>% Att.</u>
1983/84	34	5	5	13	68%
1984/85	19	2	1	5	42%
1985/86	15	0	0	8	53%
1986/87	19	6	0	9	79%
1987/88	19	0	0	12	63%
1988/89	14				

Note: Although these attrition rates appear excessively high, running at a 61% average over the five year period 1983-1988, it should be emphasized that normal attrition standards do not apply to the Carpentry Program. For example, those students who entered the workforce without completing the program might be deemed "successful" in that they had satisfied their goal of achieving employment through the acquisition of pre-employment skills. Also, we have no sense of how many of those who "withdrew" did so to take up employment; they, too, might be judged "successful".

PLACEMENT DATA

Types of Employment:

Employment in carpentry-related occupations is normally concentrated in the construction industry, although some carpenters are employed in other industries for maintenance and non-contract construction. Carpenters generally find employment in both the residential and non-residential sectors of the construction industry; however, self-employment on a contract basis is not uncommon.

Entry to the trade has traditionally been through apprenticeship, with those who have completed a full apprenticeship generally having better employment opportunities.

The following areas of employment are open to Carpentry Program graduates:

Apprentice Carpentry  
Apprentice Benchwork/Joinery  
Residential Carpentry (Roofing/Framing)  
Sub trades within building industry  
Building maintenance  
Furniture manufacturing.

### Placement Mechanisms:

No formal placement arrangements exist; however, continued contact with local industry results in most graduates finding work in the trade. Former students report between 70% - 80% employment rates, although much of this is part-time or seasonal.

### Current Salaries:

The minimum wage of graduates of the Carpentry Program is up to 50% of Journeyman rate if the person becomes an apprentice. Former students of the Carpentry Program report monthly wages ranging from a low of \$1284 to a high of \$4950, averaging at \$2500 per month. Union rates of over \$30.00 per hour are considerably in excess of non-union rates, which average at \$16.00 per hour -- a discrepancy which accounts for the wide variation in monthly pay.

### Job Opportunities Projection:

On a national basis, carpentry-related employment is expected to grow faster than the average occupational rate, although there may be some regional variations. Employment levels in carpentry may also experience some variation owing to the cyclical nature of construction activity.

Since 1982, carpentry-related occupations have faced labour market conditions that were not very favorable, as indicated by their higher-than-average U.I. claimant rate and by the absence of any hard-to-fill vacancies. However, the Statistics Canada five year projection (until 1992) is for a modest 1% per year increase in the carpentry labour force. In addition, since a relatively high proportion of this occupation (15%) is older than 54, further increases in demand of up to 1.5% per year over the next five years may be anticipated owing to retirements from the labour force. These factors may combine to create a demand of up to 2,600 carpenters per year over the next five years, for a total projection of 13000.

In British Columbia, the construction economy has returned to a total volume of 9 billion per annum, which is equivalent to the level reached in 1982, the last year prior to the recession. Industry forecasts for the interior of the Province are projecting a substantial increase in the market volume over the next three-year cycle. Several factors have combined to create a short supply of qualified tradesmen in the region: a dramatic swing from union to open-shop contractors who have not contributed to the training process; attrition of the qualified tradesmen through relocation to the likes of Vancouver and

Toronto; retirement of older members of the workforce without fresh blood entering the system; employment of qualified tradesmen as permanent staff with employers such as school boards, hospitals and municipalities; and a lack of co-ordinated industry/institutional training programs and awareness. The need for additional tradesmen in the region will be significant in the next few years.

#### Further Education Opportunities:

All kinds of potential exist for continuing education opportunities in Carpentry, but no action is currently being taken by Extension Services in the Trades and Industrial Training Division. The College may wish to explore the possibilities of mounting evening courses in the following areas:

- Transit and level operation
- Introductory surveying
- Concrete technology
- Journeyman refresher T.Q.
- Wood carving
- Furniture refinishing
- Home renovations, eg. building a rumpus room
- Hot tub construction
- Dry wall installation
- Use of power woodworking tools
- Home woodworking
- Upholstery for homeowners
- Blueprint reading
- Estimating

### STRENGTHS OF THE PROGRAM

The Program Evaluation Committee identified the following strengths in the Carpentry/Benchwork & Joinery Program:

1. Current and former students are very satisfied with the quality of instruction they received and the level of skills they achieved in the program.
2. Over and above his regular instructional duties, the instructor has assisted apprentices in reviewing and pre-testing prior to their writing Government exams for their trade qualification certificate (T.Q.).
3. The well equipped carpentry shop has contributed to the success of graduates in that it facilitates considerable hands-on skill development.
4. The carpentry shop is a facility widely utilized by other College departments:
  - a) Extension Services are using the facility for the Native House Building Program at Whispering Pines;
  - b) Horticulture uses the facility and the instructor for a course in Horticultural Carpentry;
  - c) the College Open House Committee had the instructor and students construct a model of the space shuttle for 1988 College Week;
  - d) local contractor Arnold Ansley made free use of the facility and tools to build computer equipment tables for the College last summer.
  - e) upholstery training, offered in 1986, was housed in the carpentry facility.
  - f) the Performing Arts instructor has expressed an interest in using the facility to run a Stage Carpentry course (see APPENDIX A).

## AREAS WHICH CAN BE IMPROVED (WITH RECOMMENDATIONS)

This section of the report highlights those areas of the Carpentry/Benchwork & Joinery program which the data suggest can be improved. Recommendations are prioritized, with the issue of program format and objectives taking top priority.

### 1. Program Format and Objectives

The program objective currently is to provide pre-employment training to the level of first year carpentry apprenticeship. Although this objective is understood by faculty and students, it has not been communicated to the industry, possibly because of the confusion that exists over the meaning of "TRAC" and the level of skills acquired by completing students.

Partly because of a depressed economy, partly because communications with the construction industry have been allowed to languish, and partly because the previous Advisory Committee -- the vital linkage between institution and industry -- ceased to function seven years ago, the program has been bedevilled by poor enrolments for the past four years and is currently experiencing only a 49.3% utilization rate (see APPENDIX B). As a result, the program in its present format is extremely cost-inefficient, at \$7,500 per year per graduating student over the past five years or \$10,000 per graduating student over the past three years.

The College must accordingly decide whether the Carpentry Program should be allowed to limp along in its present costly form, whether it should be phased out, or whether it should be radically reconstructed to meet the needs of the 1990's. If this third path is chosen, the following options should be considered: (a) conversion to a six month (November-April) block intake format, which is all that current enrolment patterns can justify; (b) suspension of the program for a year, to allow for the design of a new, more ambitious open entry program catering not only to pre-employment students but to all levels of apprenticeship; (c) subsumption of the program into a broader Construction Engineering Technology Program of the kind offered at Okanagan College or the College of New Caledonia.

The Program Evaluation Committee recommends that the reconstruction path be adopted and that the College explore the following options:

- a) conversion of the Carpentry Program from its current continuous intake, ten month format to a block intake, six month format (November-April or as appropriate);
- b) suspension of Carpentry operations for a year and assigning the instructor to develop the B.C.I.T. concept of an open entry curriculum catering to all levels of carpentry training from pre-employment to fourth year apprenticeship;
- c) subsumption of the carpentry operation into a Construction Engineering Technology Program after the Okanagan or CNC models.

## 2. Advisory Committee

The Carpentry/Benchwork & Joinery Advisory Committee has been inactive for the past seven years, and prior to that was rendered ineffective by union/non-union conflicts among its representatives. This fall a resurrected Advisory Committee met but is not yet sufficiently familiar with the program to fulfill its advisory function effectively. Nevertheless, whichever of the above recommendations -- 1(a), 1(b), or 1(c) -- is implemented, the Program Evaluation Committee recognizes the vital linkage between industry and education provided by Program Advisory Committees, and recommends

- a) that the Carpentry Advisory Committee be actively involved in discussion and implementation of any changes in format and curriculum in the Carpentry Program;
- b) that, to this end, the Advisory Committee meet on a regular basis twice a year and provide direction and advice to the Carpentry Program, whatever its format;
- c) that the Advisory Committee vigorously communicate information on the state of the Carpentry Program to the construction industry and representative bodies in the College Region, such as the Southern Interior Construction Association (SICA).

## 3. Marketing

Carpentry is a salutary example of a program that has atrophied through lack of marketing and public awareness. Accordingly, the Program Evaluation Committee recommends that the following measures be taken to ensure the future success of the program or its successor:

- a) that the "TRAC" appellation of this program be changed to "Pre-Employment Training" or something similar, as the TRAC acronym conveys nothing to much of the construction industry, and in fact fosters confusion;

- b) that the Director, Trades and Industrial Training, and the relevant departmental chairperson foster the image of carpentry via the Carpentry Advisory Committee, SICA and individual companies; that Advisory Committee and industry representatives be invited to all College Open Houses; and that SICA be invited to hold a meeting at the College to familiarize its members with the carpentry facility;
- c) that the Director, Trades and Industrial Training, and the relevant departmental chairperson inform CEC of the revival of the construction industry in the Interior of B.C. and of the potential shortage of trained trades-people in the 1990's;
- d) that the Director, Trades and Industrial Training, the relevant departmental chairperson, and the Counselling Department inform high school counsellors of the Carpentry Program and the new activity in the construction industry, and actively market the program at high school career days.

The following two sections apply only if the Carpentry Program continues in its present format:

#### 4. Curriculum

Should the Carpentry Program continue in its present format, former student and faculty comments indicate that some adjustments need to be made to its curriculum, particularly the Common Core segment. Moreover, former student responses indicate an interest in further education in some of the "speciality" topics listed on page 9 of this report. Accordingly, the Committee recommends

- a) that the Program Instructor revise all the test questions and the Physics component of the TRAC Common Core;
- b) that the Program Instructor place more emphasis on oral and written communication skills in the Common Core;
- c) that the Extension Co-ordinator, Trades and Industrial Training, explore the possibility of mounting night courses in the areas of blueprint reading, estimating, transit and level operation and project management, as well as others listed on page 9 of this report.

## **5. Departmental and Divisional Responsibilities**

Should the Carpentry Program continue in its present form, some effort should be made to counter its sense of isolation. Currently located in the Mechanical Trades Department, and lacking the support of cognate construction trades programs such as Bricklaying, Plumbing and Drywalling, the Carpentry Program has suffered somewhat from neglect at the Departmental and Divisional levels. The Carpentry instructor, moreover, is overwhelmed by non-instructional duties such as toolroom inventory and equipment maintenance and cannot be expected to market the program as well; this is a Departmental and Divisional responsibility. Therefore, the Program Evaluation Committee recommends

- a) that the relevant departmental chairperson and the Divisional Director, Trades and Industrial Training, assume marketing responsibilities for the Carpentry Program;
- b) that the relevant departmental chairperson and the Divisional Director, Trades and Industrial Training, attempt to mitigate the isolation of the Carpentry Program.

The following recommendations apply only if the Carpentry Program is suspended as per Recommendations 1(b) or 1(c):

## **6. Facilities and Equipment**

A tour of the Carpentry facility by the Program Evaluation Committee ascertained that while both facility and the toolroom equipment are excellent (the latter alone valued at between \$200,000 and \$300,000), the shop area is currently being under-utilized and much of it used as storage space. Nevertheless, the Committee is highly concerned that both facility and equipment be retained, as their replacement would require considerable expense if the Carpentry Program is resurrected in the future. Therefore, the Committee recommends

- a) that the Carpentry Program facilities and equipment be retained with an eye to the future;
- b) that the College entertain the possibility of re-allocating on a temporary basis some of the currently under-utilized Carpentry shop area to other programs, but that such a "loan" be redeemable by the Carpentry Program should the need arise.



Cariboo College

**Memorandum**

To: Dr. A. Watt

From: Dr. D. Edwards

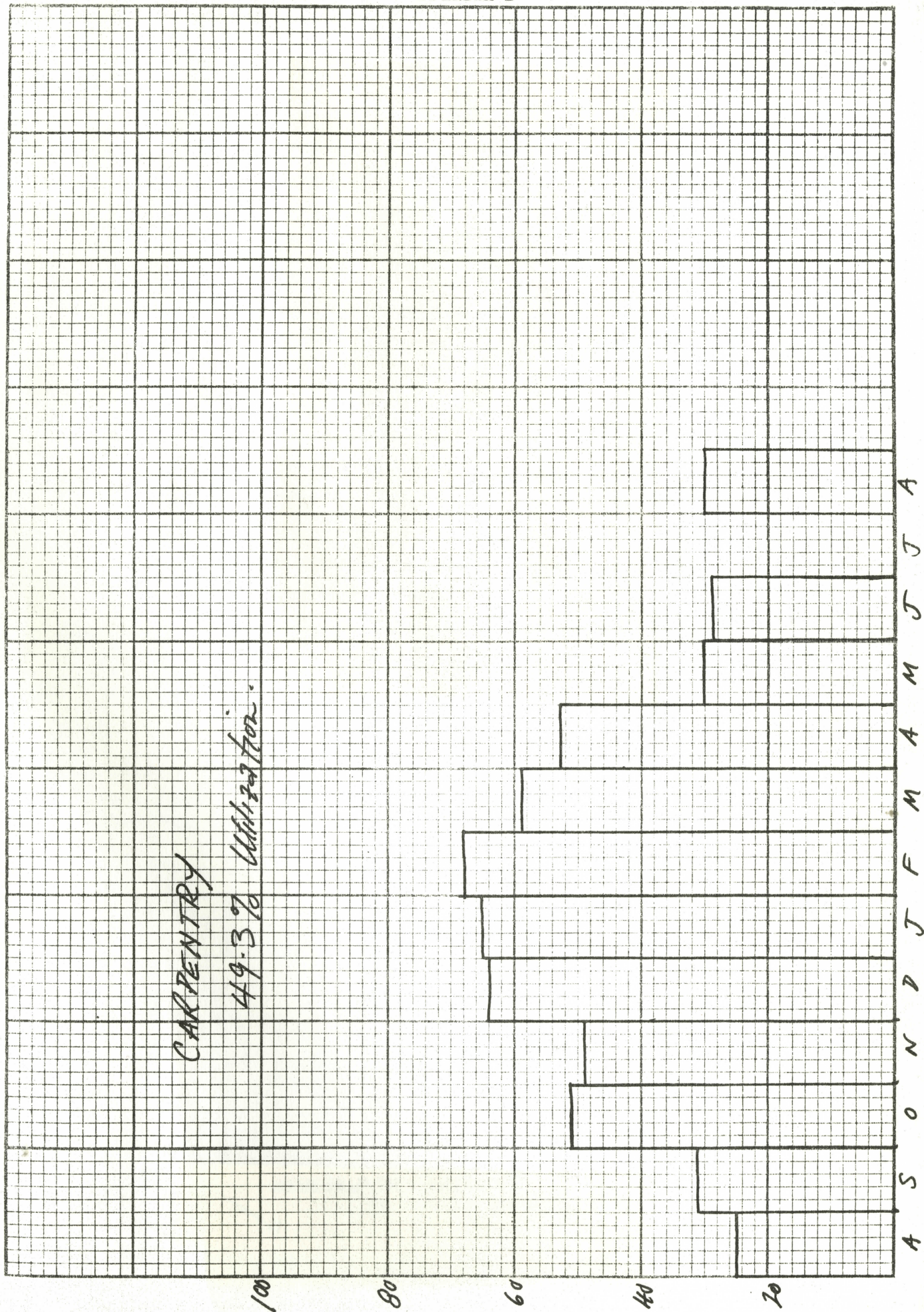
Date: November 15, 1988

Re: "Stage Carpentry"

Cariboo College has the opportunity to become the only post-secondary institution in Canada to offer a professionally oriented Stage Carpentry program. This would involve coordination with the existing Carpentry program and the proposed Technical Theatre course now being developed by the Fine and Performing Arts Department for the Fall Semester, 1989.

Obviously, a suitable work space is required for these offerings.

David



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