

BILLING PROGRAM FOR
CENTRALIA RURAL HIGH SCHOOL

by

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INTRODUCTION

The Centralia Rural High School, District No. 7, located in Nemaha County, has for its school and community center Centralia, Kansas, a town of 570 people.

School consolidation, increased birth rate, an outmoded building, and the general trend in modern education are all contributing factors, making the Centralia community, like many other Kansas school communities, urgently in need of a new high school building. A large number of school patrons have long recognized this need, but were unable to harmonize a building program with the financial support previously available for the Centralia School System. The small city-village district, having a valuation of approximately three-fourths of a million dollars, was taxed to the limit each year to meet current expenses.

Many people moved from the city of Centralia to war plant centers during the years of 1941 to 1945, lowering the population to a figure below 500. This was a significant population number prior to 1947 for the organization of a rural high school district. Section 72-3504 G. S. 1935, Kansas School Laws (14, p. 198) provided that any incorporated city with a population of less than 500 could be considered as part of the proposed rural high school territory petitioning, and holding a special election for the purpose of organizing a rural high school district.

The electors of the city of Centralia now having an opportunity to vote in an election with the rural community electors made the prospect of a large rural high school district for Centralia look favorable.

Arrangements were made for an election which carried overwhelmingly in favor of the proposed district. The balloting showed 535 votes for the new district to 85 votes against.

This transformation from a school district with a valuation of less than a million dollars to one with a valuation of over four million dollars, immediately made possible the prospect of a new high school building. It is the purpose of this study to develop a building program which will serve as an advisory guide for the Board of Education of Centralia Rural High School and the Centralia School patrons in making intelligent decisions for the construction of a functional school plant. The "school plant", according to the National Council on Schoolhouse Construction (18, p. 36), is defined as the land, buildings, equipment, and all other physical facilities provided for schools and for community services connected therewith. A functional plant is more than a series of spaces, each of which may be satisfactory for its special purpose. The entire plant of a local school system should be comprehensively planned for the programs of school and community services in light of state and local requirements and conditions; and the building should be planned in terms of the interrelationships of the different units and specific spaces.

REVIEW OF LITERATURE

In order to ascertain what is known in the development of school building programs, a search was made for available literature. The Kansas State College library was used. School building "codes" were secured from several state departments of education. Most material, however, was found in professional school magazines which recently have published many important articles on this subject.

Hamon (8, p. 39) insists that educational plants cannot be planned intelligently until the scope of the program, curriculum content, and basic educational methods have been determined; and these determinations can be made only with a sound philosophy of the aims and purposes of education as a base. Educational aims and objectives are not easy to define, because education for an ever-changing society must be dynamic. Yet it is both an opportunity and an obligation for the local school system to undertake this task as the first step in a building program.

Perkins and Cochran (19, p. 63) infer that in planning a school plant, however large or small, the indispensable starting point must be a statement from the board of education showing what the school system hopes to accomplish. What service does it wish to provide for students? Between what age levels? For what kind of living and working should they be prepared?

How nearly is this being accomplished at present?

One gets the impression from Muschell (17, p. 52) that while the causes for the poor functional qualities of the majority of our present school structures are many and varied, it is clear that in the future the school administrator will be obliged to assume the lion's share of any criticism. His status as educational leader and his professional relationship with the board of education have never been so clearly defined as at present. Although the board represents the policy-making group, it looks to the administrator for the conduct of the educational program and for recommendations governing the future of its schools. Not the least of these recommendations will be concerned with a sound program of school building planning and construction.

Muschell (17, p. 52) makes the following statement:

The superintendent is the professional adviser. No protestation of ignorance will relieve him of this responsibility. In the absence of competence in this respect it is to his credit to recommend the services of an outstanding consultant well versed in both education and school buildings. An error on the part of the administration in curriculum planning, though deplorable, is subject to relatively immediate correction. An error in school construction will outlive him.

Engelhardt (7, p. 4) implies that the community school plant of the future should be so conceived that the reasonable desire of all individuals for further education may be satisfied. Full recognition must be taken of the inevitable extension of the school program below the kindergarten and first

grade, and above the twelfth year.

Communities within this country differ widely as to school plant needs. No standardized school building will satisfy these various needs. Each community must study its own needs and devise that system of education that will best meet them. Only the most careful attention to details - economic, social, vocational, civic - as well as educational needs, will produce a school plant best fitted for community progress.

The following statement was made by Engelhardt (7, p. 5):

Education is moving toward new and higher levels of community service. Today, more and more persons are seeking the advantages of education for better adjustment to all phases of living, and the community school plant must be ready for them.

Engelhardt (4, p. 48) recommends the use of a school building manual which will assist the local administration, faculty, community leaders and the architect in the construction of a new building. This manual would include a survey of the present and the future.

Engelhardt (7, p. 5) lists the following techniques of school planning:

1. Analysis and projection of population with due reference to age, economic and social groups requiring special attention.
2. Comprehensive survey of the community development.
3. Correlation of school planning with the plans being advanced by all other community agencies including housing, library and recreational agencies.
4. Thorough-going inspection of the existing educational facilities of the community with proposals to meet new and emergent conditions.

5. Determination of the existing units to be retained in the future plant.

6. Layout of the future plant showing the kinds and character of units required to carry out the proposed program.

7. Determination of space requirements for each future building unit through the utilization of all the professional skills available.

8. Fixing of site standards and the selection of sites required for a proposed comprehensive community plan, with future changes allowed for.

9. Presentation in an orderly fashion of all proposed construction with future changes allowed for.

10. Ascertainment of the financial costs and the development of the long-range financial program in keeping with the community's ability to pay.

The following list of basic steps in school building planning has been compiled by Marshall (15, p. 202-206) who states that no list of steps in planning a school plant is sacred; no list can apply unchanged to every planning situation:

1. Study the community.
2. Determine the educational program.
3. Select an architect.
4. State clearly the building needs.
5. Select the school site.
6. Prepare preliminary drawings.
7. Determine financial requirements.
8. Award the contract.
9. Supervise construction.
10. Install equipment.

11. Develop the site.

12. Acquaint staff and citizens with their new building.

Educators today are becoming aware of the necessity of such procedure and policy in the development of school building programs in their local schools. Suggestions, made by Engelhardt and others have been followed in a survey for this study.

SURVEY TO DETERMINE EDUCATIONAL PROGRAM

The functional survey of the school building needs in the Centralia community was made as a special research in this study. The objective of a functional survey is to determine the physical plant requirements for the projected educational program, taking into consideration the existing facilities that are adequate, the existing facilities that are obsolete, and the additional facilities that will be required to bring the over-all plant in balance with the projected educational program. In addition to this careful analysis in regard to the educational program, consideration is given to the evolutionary developments which may be made in the future, due to economic and social requirements. The development and growth of the Centralia community in the past, present, and future will influence the functional survey, and the natural and artificial barriers that encourage or discourage the development of industry, business, or residential areas.

The Centralia community is strictly an agricultural area and will in all probability continue as such. A transformation from intensive to extensive farming is quite prevalent. This is further verified by the decrease in farm population, and by the closing of 10 rural schools which lie within the boundary of the Centralia Rural High School district. A normal growth in the future cannot be anticipated other than by the increase in birth rate. The following table shows the population decrease from 1936 to 1946 and a slight increase from 1946 to 1948.

Table 1. Population of Centralia Rural High School District.

Year	Population	Decrease 1936-1946	Per cent of decrease 1936-1946
1936	2183		
1941	2016	357	16.8
1946	1826		
		Increase 1946-1948	
1948	1857	31	1.7

The school system of Centralia is operated on the basis of the 8-4 plan, or the first eight grades in the Elementary School and the four years of High School. The Elementary School and the High School are housed in the same building which belongs to the Elementary School district.

The building is a two story brick structure with a basement. It was built in 1906 and is now obsolete insofar as functional expression of educational requirement is concerned.

The building represents a serious fire and health hazard to the students housed within it. The structural condition of the walls is considered sound, but the adaptability of the space to the educational program is inadequate.

Modernization of the building is possible and much could be done to improve the lighting and interior decoration of the building.

The Elementary School occupies the first story with four classrooms. The average enrollment of 36 pupils per classroom makes possible only 17.5 square feet of space per pupil. This is insufficient space allowance for a modern elementary school program. National Council on Schoolhouse Construction (18, p. 81) says:

The area required for elementary school programs varies greatly with the type of educational program. While 15 to 18 square feet per pupil of floor space seemed sufficient for the traditional school program in which the teacher merely heard lessons in a room with fixed school desks, a modern elementary school program may require up to 30 or over 40 square feet per pupil in the classroom, especially in the kindergarten and early elementary classrooms.

With this inadequacy of space requirement, the Elementary School program is curtailed and must operate in the traditional school style. The High School, occupying the second floor, makes relief from crowdedness in the Elementary School impossible.

A new combination gymnasium and auditorium was added to the building in 1936. It meets the functional requirements of the present school program.

Table 2 shows the subjective scoring of the Centralia

School plant, based on the criteria of modern school building standards. Evaluations of the subtopics denoted by Arabic number are in column 1, subtopics denoted by capital letters are in column 2, and main topics denoted by Roman numerals are in column 3.

The decrease of High School enrollment from 1936-1946 shown in Table 3 was a total of 30 students or 25 per cent of the 1936 enrollment. This downward trend is due to the population decrease of 16.8 per cent and also to the fact that several students enlisted in military service during the war. Others quit school to work in defense plants. Statistics of the total high school enrollment in Kansas show a similar decline during the war years. The increase of High School enrollment from 1946-1948 has no statistical value as there is no foreseen reason to look for any additional enrollment before 1956.

The Elementary School shows a decrease of 38 pupils or 29 per cent for the period from 1936-1945, an increase of 51 pupils or 55 per cent from 1945-1948. This increase was definitely due to the reorganization and closed rural schools.

The reorganization program during the years of 1945 and 1946 added 10 rural school districts to the Centralia Elementary district.

The decrease in school enrollments from 1936 to 1946 apparently was caused by the migration of local population to the war plant centers, as shown in Table 1.

Table 2. Score card* for Centralia School system, 1947-1948.

		1		2		3	
		a	b	a	b	a	b
I. Site						125	109
A. Location				55	53		
1. Accessibility	25	25					
2. Environment	30	28					
B. Drainage				30	26		
1. Elevation	20	18					
2. Nature of Soil	10	8					
C. Size and Form				40	30		
II. Building						165	119
A. Placement				25	18		
1. Orientation	15	10					
2. Position on Site	10	8					
B. Gross Structure				60	45		
1. Foundations	5	3					
2. Walls	5	4					
3. Roof	10	8					
4. Entrances	10	8					
5. Aesthetic Balance	15	10					
6. Condition	15	12					
C. Internal Structure				80	56		
1. Stairways	35	20					
2. Corridors-Size	20	18					
3. Corridors-Walls	15	10					
4. Corridors-Floors	5	4					
5. Condition	5	4					
III. Service Systems						280	218
A. Heating and Ventilation				80	70		
1. Kind	15	15					
2. Installation	15	14					
3. Air Supply	15	12					
4. Fans and Motors	10	8					

Table 2. (Cont.).

	1		2		3	
	a	b	a	b	a	b
5. Distribution	10	9				
6. Temperature Control	15	12				
B. Fire Protection			65	44		
1. Apparatus	10	8				
2. Fireproofness	15	5				
3. Escapes	20	15				
4. Electric Wiring	5	3				
5. Fire Doors & Partitions	10	8				
6. Exit Lights & Signs	5	5				
C. Artificial Lighting System			40	20		
1. Outlets	10	5				
2. Illumination	15	10				
3. Fixtures	15	5				
D. Electric Service System			15	14		
1. Clocks	5	4				
2. Bells & Gong	5	5				
3. Telephone	5	5				
E. Water Supply System			30	26		
1. Drinking	10	8				
2. Washing	10	8				
3. Bathing	5	5				
4. Hot	5	5				
F. Toilet System			50	44		
1. Distribution	10	10				
2. Fixtures	10	9				
3. Adequacy & Arrangement	25	20				
4. Seclusion	5	5				
IV. Class Rooms						
A. Location & Circulation			35	25		
B. Construction & Finish			95	69		

Table 2. (Concl.).

		1		2		3	
		a	b	a	b	a	b
1.	Size & Number	25	20				
2.	Shape	15	10				
3.	Floors	10	9				
4.	Walls & Ceilings	10	7				
5.	Doors & Trim	5	3				
6.	Closets & Cases	5	1				
7.	Blackboards	10	7				
8.	Bulletin Boards	5	4				
9.	Painting	10	8				
C.	Illumination			85	54		
1.	Glass Area	45	20				
2.	Windows	30	25				
3.	Shades	10	9				
D.	Cloakrooms & Wardrobes			25	15		
E.	Equipment			50	31		
1.	Seats & Desks	35	20				
2.	Teacher's Desk	10	8				
3.	Other Equipment	5	3				
V.	Special Rooms					140	49
A.	Rooms for General Use			65	30		
1.	Activity Room	30	10				
2.	Library	25	10				
3.	Lunch Room	10	10				
B.	Rooms for School Officials			25	12		
1.	Officers	10	8				
2.	Teachers' Room	10	9				
3.	Janitor's Room	5	4				
C.	Other Special Service Rooms			50	7		
1.	Project Room	20	5				
2.	Health Room	20	0				
3.	Kitchen	5	0				
4.	Store Rooms	5	2				
TOTAL		1000		1000		1000	689

* a = standard score
b = graded score

Table 3. Enrollment trend of the Centralia School System.

Year:	High School: enrollment :	Per cent of decrease :	Grade School: enrollment :	Per cent of decrease :
1932	124		129	
1936	120		130	
1940	117		111	
1941	120		114	
1942	107	25	108	29.2
1943	103	1936-1945	100	1936-1945
1944	98		96	
1945	92		92	
1946	90	Increase	126	Increase
1947	98	1946-1948	136	1945-1948
1948	100	11	143	55

A review of the rural school districts, Table 4, still operating and within the boundary of the Centralia Rural High School district, indicates an additional potential load of approximately 47 pupils for the Elementary School. There is no way of predicting finally whether these schools will close, but if the shortage of qualified teachers continues and the operating expenses increase more, it is quite probable that most of them will close soon. District No. 81, a Catholic community, and District No. 5-NP, located in an isolated section of the Rural High School district, will probably continue to run for many years. Eliminating these two leaves an enrollment of 47 which might easily be added.

Table 4. Potential added load from rural districts.

Rural district number : 1947 enrollment	
36	10
81	14
104	11
10	7
46	6
67	5
97	8
5-NP	17
Total	78

The marked increase in birth rates throughout the nation in 1946 and 1947 will contribute to the increases in the school census. According to the Kansas Government Journal (12, p. 43), the birth rate increase in Kansas during the year of 1946 was 34 per cent greater than 1936. The birth rate in 1947 was 55 per cent greater than 1936. There is no official forecasting as to the length of time this phenomenal birth rate increase will continue. Statisticians, however, believe that 1946, 1947, 1948, and 1949 will represent the peak years, and then the continuation of the high rate of birth increase over 1936 will tend to lower. Assuming that these predictions are reasonably accurate, it is obvious that one can expect at the beginning of the year 1952 and continuing for a period of four years, a pupil enrollment that will reflect the high rate of birth increases now occurring.

Since the percentage gain in births for the years from

1942-1947 is based upon 1936; and the sixth grade of 1947 represents approximately the 1936 births, one can estimate the increase from births for the years 1942 to 1947. The present sixth grade enrollment of 17 pupils of the Centralia Elementary School results from the births of 1936. Since the 1947 birth rate was 55 per cent greater than that of 1936, the gain would represent nine pupils. This indicates an increment in the enrollment that will register in grade 1 for the school year of 1953. Assuming that the normal increase or decrease is relatively the same for the 1947 births, until they reach the sixth grade, as was for the 1936 births who represent the present sixth grade, 26 pupils will be found in the sixth grade in 1959.

Table 5 shows the per cent of increase of birth rates for the years from 1942-1947 over 1936, and also the estimated number of effective births for each year; or those who will reach the sixth grade 12 years later.

Table 5. Birth rate increase over 1936.

Year	Per cent of birth rate increase	Estimated number of births reaching the sixth grade
1942	22	21
1943	28	22
1944	19	19
1945	19	19
1946	34	23
1947	55	26

The average effective number of births per year from 1942-1947 is 21.5 or 4.5 more than in 1936.

According to Table 6, it is apparent that the Elementary School of Centralia, Kansas with an official enrollment of 143 in the 1947-1948 term will have an estimated enrollment of 179 in 1956 from the increased birth rate; and a possible 226 should the potential consolidations indicated in Table 4 materialize. Therefore, any consideration of the functional requirements of the Elementary School program must take into consideration the potential enrollment during the next eight years.

It can be seen that the Elementary School will need to utilize all of the functional space in the present building in order to meet the requirements of presenting a sound educational program. Consequently, the high school will have to find quarters elsewhere.

Table 6. The estimated Elementary School enrollment for the next 10 years.

<u>Enrollment including increase: Potential added load:</u>			
<u>Year:</u>	<u>from increased birth rate</u>	<u>:from rural districts:</u>	<u>Total</u>
1948	143		
1949	147		
1950	152		
1951	156		
1952	161		
1953	165		
1954	170		
1955	174		
1956	179	47	226
1957	183		
1958	188		

The same method, as was used for the Elementary School, was used for arriving at the High School estimated enrollment.

The present senior class of 29 students results from the births in 1930. The birth rate of 1947 is 38 per cent more than in 1930. The senior class of 1965 will therefore have approximately 40 students. Table 7 shows the estimated number of effective births from 1942-1947 or those who will reach the senior year in high school 18 years later.

Table 7. Birth rate increase over 1930.

Year:	Per cent of birth rate increase over 1930	Number of births reaching senior standing
1942	8	31
1943	14	33
1944	8	31
1945	5	31
1946	10	38
1947	38	40

The High School enrollment will show no marked increase until 1960. The estimated enrollment from 1960 to 1965 is shown in Table 8. This estimate is based on the fact that the 1942 births will be seniors in 1960; 1943 births, juniors; 1944 births, sophomores; and 1945 births, freshmen. This gives a total of 126 for high school in 1960. The enrollments for the years following 1960 up to and including 1965 are estimated in the same manner.

Table 8. The estimated High School enrollment for the years from 1960-1965.

Year	:	Enrollment including increase from increased birth rate
	:	
1960		126
1961		133
1962		140
1963		149
1964		158
1965		160

The High School enrollment has a definite relationship to the Elementary School enrollment, with such added increases as result from the enrollment of rural students. For agricultural communities in Kansas with similar school programs as that offered in Centralia, approximately 45 per cent of the elementary school enrollment is reflected in the high school enrollment during the same year. Substantiating evidence on this point is the fact that the total high school enrollment in Kansas from 1940 to 1947 averaged 41 per cent of the elementary enrollment. For Nemaha county in 1947 it was 46 per cent of the elementary enrollment. The maximum enrollment in the Centralia Elementary School in 1958, Table 6, estimated at 179, would provide 80 students in the High School, with a possibility of an additional 45 students from the rural schools, Table 4. The estimated High School enrollment for the city and the rural students would be 125 in

1956. This is assuming that the rural school enrollment will increase the same per cent as that of the Elementary School. Both estimates are conclusive evidence that the new building must meet space requirement capable of housing 140 students.

A school building, according to Muschell (17, p. 56), should represent the curriculum of the community and express the philosophy of education upon which the curriculum is built.

A large number of the Centralia High School graduates remain in the local community, as is true of other Kansas communities. Bickford (1, p. 10-24), in a follow-up study of the high school graduates of the Enterprise High School and the Phillipsburg High School, found that 34.6 per cent of the Enterprise male graduates remained in the local county, 54.5 per cent remained in the state of Kansas; for the female graduates 36.8 per cent stayed in the local county, and 60.1 per cent stayed in the state of Kansas. The Phillipsburg graduate follow-up study showed that 52.9 per cent of the males remained in the county, 71.8 per cent remained in the state; and that 59.5 per cent of the female graduates remained in the county and 78.9 per cent remained in the state.

A conclusion from Bickford's study would emphasize the importance of a high school curriculum which will provide the opportunities for a student to prepare for occupation and living in the home community. This would include vocational

training, however, the basic subjects including state requirements, Kansas Secondary School Handbook (13, p. 10), cannot be omitted. Cameron (2, p. 21), in a survey of Wilson High School graduates, revealed that the basic subjects of mathematics, English, commerce, and physical science have been of the most value to the Wilson High School students in their employment and later life.

A conclusion also made by Bickford (1, p. 47) and Cameron (2, p. 11) was that since approximately 30 per cent of the graduates of small high schools attend schools for advanced training, the college preparatory courses must be retained as a part of the curricula offered.

The philosophy of education in the Centralia School system is concerned with the individual student; with his needs, with his activities, and with his development.

It is the aim of the educational program of Centralia Rural High School to meet the specific needs of the individual student and to afford each student the opportunity to develop himself physically, mentally, emotionally, socially, morally, and spiritually. It is the aim of the school to develop the pupil more fully so that he may occupy his place in a democracy, both in school and in adult life, with a greater degree of satisfaction to himself and to others.

The responsibility of accomplishing the above aims demands a curriculum well grounded in present-day life and must focus attention upon the local community.

The present curriculum content offered in the Centralia High School consists of the following program of studies:

1. English - English I, English II, English III, and speech and dramatics.
2. Mathematics - Algebra I, Algebra II and plane geometry.
3. Social science - American history, American government, world geography, sociology, psychology, orientation and guidance.
4. Sciences - general science, biology, and physics.
5. Commerce - Typing I, Typing II, shorthand, and general business.
6. Industrial and vocational arts - Vocational Agriculture I, Vocational Agriculture II, Vocational Agriculture III, Home Economics I, Home Economics II, and Home Economics III.
7. Fine arts - rudiments of music.
8. Physical education - gymnasium class.
9. Extracurricular activities - football, basketball, track, band, glee clubs, Y-Teens, FFA, 4-H club and pep club.

A careful analysis of the above program of studies would indicate that a well-balanced curriculum is being offered; and in many respects meets the needs of the Centralia community.

Curriculum revision at Centralia is in agreement with

Menroe (16, p. 1098) who states:

The decade since 1930 has become noteworthy for the nation-wide curriculum revisions at the secondary level. The new concept of secondary education is pupil-centered rather than subject-centered. It is the modern reiteration of the primary motive that was in Franklin's mind, that impelled the establishment of the first public high school, that caused the rebellion against the report of the Committee of Ten, and that has gradually grown in power since the turn of the twentieth century. Its goal is "to fit the needs of present-day society."

The present program of studies uses 86 per cent of the room space of the building, based on a six period day, as shown in Table 9.

Table 9. Present use of room space.

Room number:	Total number of periods: room is in use	Total number of periods for use
1	4	6
2	6	6
3	5	6
4	6	6
5	5	6
6	4	6
Voc. Ag.	5	6
Total	35	42

The inadequacy of the present program lies in the lack of standard school facilities for such fields as vocational homemaking, science, commerce, fine arts, and adult education.

The fact that most female graduates eventually become homemakers, Bickford's (1, p. 12) study shows 79 per cent

become homemakers, is proof that more should be provided in the vocational homemaking field.

Although basic science subjects are offered, insufficient laboratory facilities limit the results of obtaining the objectives of the subjects. The science classroom and laboratory, including storage, is provided in a space 16 feet by 22 feet, exposure is to the west with only two windows. This allows approximately 17 square feet per student, considering the average size class is 20.

Standards for Schoolhouse Construction (21, p. 52) describes a well equipped science laboratory as:

Area, 35 to 40 sq. ft. per pupil. South or east exposure. These laboratories should be equipped with work tables, and with gas, water and electricity connections. Abundant storage space is essential, with an adjoining storeroom wherever possible. Built-in shelving and cupboards should accommodate apparatus, chemicals, specimens, and other supplies and equipment. Abundant tackboard should be provided. The teacher's demonstration desk should be equipped with gas, water, and electricity. Steel files, dark curtains, screen, and outlets for projector. In the general science room, a growing table with an aquarium should be provided. A sunny exposure is especially important for the biology laboratory.

The commerce department is popular in the Centralia School. A large number of students enroll in this course each year. The department should be expanded to qualify fully the graduates for clerical occupation. The Centralia graduates who enter the commercial field have a limited amount of clerical training and are required to further qualify themselves in institutions of higher training. This training could be successfully and

economically given in the Centralia High School. Bickford (1, p. 12) shows that business and clerical occupations rank among the leading four occupations followed by high school graduates. Space allotment in this department meets standard requirements, but the room is limited to the instruction of typing only. A room equally as large should be provided for other commerce subjects.

The music department finds adequate space for expression in the new combination gymnasium and auditorium, however, the lack of acoustical treatment in the building makes practice periods annoying to students in other departments. Practice rooms, treated with acoustical material, are needed.

The school library is most deplorable, being located on a landing between the first and second floors. It is very small and inconvenient.

Any expression of art, such as painting, drawing, textiles, wood carving, or fine metal work, is beyond the scope of the present facilities.

Adult education can best be described by Engelhardt (6, p. 171):

The school building cannot stand apart from the community with a traditional curriculum and a traditional use. As far as possible the school, through its facilities, should be permitted to contribute to the improvement of living for adults as well as children. In the new planning every adjustment should be made to meet this combination of needs. The child in a democracy belongs to the parents. The child's school should attract the parents and be planned for the needs of the parents. The child is also a member of the community. In his education he should be encouraged to consider himself as a member of

Table 10. Schedule of Classes* for Centralia Rural High School, 1947-1948.

Schedule of Teachers and Rooms.												
Schedule :			Teacher :			Teacher :			Teacher :			F
Cl.:	of	Teacher :	Teacher :	Teacher :	Teacher :	Teacher :	Teacher :	Teacher :	Teacher :	Teacher :	Teacher :	
Pd.:	Principal:	Rm:	A	B	C	D	E	F	G	H	I	J
1	St. Hall and Office	3	Home Ec. II	6	Speech and Dram.	4	Const. and Soc.	2	Typing II	5	Algebra I	Voc. Ag. II
2	Algebra II	1	Home Ec. III	6	English I	4	World Geog.	2	Short-hand	5	St. Hall 3	Voc. Ag. II
3	Physics	3	Home Ec. I	6	English III	2	St. Hall	4	Gen. Bus.	4	Geometry I	Voc. Ag. I
4	St. Hall and Office	6	Gen. Sc.	3	English II	1	Amer. Hist.	2	Typing I	5	Music I and Orien.	Voc. Ag. III
5	Super. and Guid.		Biology	3	St. Hall	2	Phy. Edu.	Gym	Typing I	5	Music II and Psych.	Voc. Ag. III
6	Ath.		W.-St. Hall		W.-Th.-P Library		Ath.		Th.-F. St. Hall		Glee Clubs Chorus	Project Work
			W.-GR.		T.-W. St. Hall							

* Band was offered at 8:30 a. m., daily schedule of P.

the community. The development of community schools in which adults as well as children frequently work side by side will help greatly in the advancement of American democratic living.

The proposed high school building must provide functional facilities for a balanced program between the consideration of subjects by the study and recitation method and of learning through seeing and doing - the so-called "activity" method for both students and adults.

PLANNING THE NEW SCHOOL PLANT

Selection of Architect

Marshall (15, p. 202-203) infers that the selection of the architect is a crucial step in the administration of a school building program. His experience and ability will be of value not only in designing the building but also in the selection of a building site and in the formulation of a plan of organization for the building program.

Marshall's list of qualities essential to a successful school plant architect include the following:

1. Ability to handle problems of building design and construction with facility.
2. Ability to plan school buildings in terms of a specified program of education.
3. Ability to plan school buildings that are relatively economical in terms of usable space, construction costs, and maintenance costs, without sacrificing utility, pleasing appearance, and durability.

4. Ability to prepare final plans that are clear and complete.

5. Ability to prepare complete specifications, clearly stated and free from ambiguity.

6. Executive ability in drawing contracts, investigating bidders, and co-ordinating the work of contractors.

7. Ability to provide or secure necessary engineering and consultant services.

8. Ability to provide adequate supervision of construction.

9. Fundamental honesty in all personal and professional dealings.

10. A desire and ability to work harmoniously with other people.

According to Hawkes,¹ it is a responsibility of the architect to make plans and specifications for building which will express in structure and equipment the physical means of satisfying the educational needs as determined by the board of education. As a representative of the board, he is legally and professionally obligated to protect the economic interests of the board in developing plans, selecting equipment and materials, supervising construction and installation, and letting bids to contractors. He should work in close harmony with the board and the educational representatives selected by the board to advise with him.

Good practice recommends a policy whereby the board delegates to the school administrator and to the teaching staff

¹ Supt. C. E. Hawkes, Salina City Schools, Salina, Kansas, Counsel.

most of the responsibility for detailed educational planning as pertains to relations with the architect. Under this practice the board considers and decides upon the broad aspects of plan proposals.

The architect for the Centralia building program was selected by personal interview. Five architects were interviewed. The architect² was selected for the following qualities: a specialist in school building construction, has built school buildings in Kansas, has a pleasing personality, has the ability to get along with the contractors, and was endorsed by several school superintendents.³

The agreement between the architect and the Board of Education of Centralia Rural High School makes the architect responsible for the preliminary plans and estimated cost. This is without a fee should the bond election fail to carry.

Site and Development

The selection of a site for a new building necessitates the purchase of only a small area of land in addition to the present athletic field. This land lies across a road west of the athletic field and just outside of the city limits. Permission has been given by the city commissioners for the

² Joseph W. Radotinsky, Architect, Kansas City, Kansas. Counsel.

³ Supt. W. D. Wolfe, Atchison City Schools, Atchison, Kansas.
Supt. M. F. Stark, Hiawatha City Schools, Hiawatha, Kansas.
Supt. C. E. Hawkes, Salina City Schools, Salina, Kansas.

closing of the road if the school authorities deem it necessary to do so.

The closing of the road and the purchase of a strip of land 100 feet wide and 720 feet long would make an area 500 feet by 720 feet or approximately 8.5 acres for site purposes. National Council on School House Construction (18, p. 42) recommends a minimum site of 11 acres for a school having an enrollment of 100.

Although the site area is some less than the standard recommended, it approaches the standards in most all other characteristics. Its location lends itself well to community use. It is within the accessible distance of one mile for any city student. The physical features - contour, subsoil conditions, topsoil conditions and elevation are favorable.

The acquisition of the necessary land to complete the site area will probably be a direct purchase from the owner by the Board of Education. Monroe (16, p. 1032) lists three most common methods of purchasing school sites as:

1. Direct purchase from the owner by the board of education.
2. Purchase from the owner by a third party representing the board of education.
3. Acquisition by condemnation proceedings.

The chief disadvantage of direct purchase is that the price asked for property generally advances sharply when wanted for public uses. The second method seeks to offset that inclination by having a third party negotiate the

transaction.

The chief disadvantage of the third method, particularly in small communities, is that there is a great deal of public sympathy for any person whose property is being forcibly taken from him even if he may have no valid reason for not permitting it to be used for public purposes.

Characteristics of the Building

It is generally accepted that the following characteristics are essential in a school building:

1. Safety - fire, explosion, and stairways.
2. Expandable.
3. Functionally flexible.
4. Mechanical economy - heating and plumbing, cleaning, and storage.
5. Durable.
6. Adaptable to high degree of utility.
7. Healthful - lighting, ventilation, and sanitation.
8. Adequate to need.
9. Operationally economical as to traffic flow.
10. Aesthetic.

In a small high school much consideration and thought must be given to the functional flexibility in order to maintain a high degree of utility. The proposed Centralia High School building will meet the demand of an expanding curriculum in a

way that space will not be just a luxury and added unnecessary expense to the taxpayers. The principle of multiple use of space will be given careful consideration in the planning of such units as: science classroom-laboratory, combination vocational homemaking room, library-study hall, vocational agriculture and general shop department, gymnasium-auditorium, office suite, health-guidance, and band-choral facilities.

Engelhardt (5, p. 263) says that best practice in utilization of school building space is 68 to 80 per cent. A building which is used less than 60 per cent of its capacity, in space and student stations, can be reasonably assumed to be poorly planned or inefficiently administered. A student station may be defined as any seat, machine, space at table, or proportion of space on floor, as for example, in the gymnasium, to which a pupil may be assigned for any period or part of a period. It must be remembered that the high degree of utilization of a building is determined largely by the number of enrollment. The smaller the school the lower the degree of utilization will become; especially if the building is being planned to provide facilities for a broad and rich curriculum. It can be expected to fall some short of Engelhardt's standard in a small school. Utilization is determined by the way one answers the following questions: Who are you planning to educate? How well do you plan to educate?

The functional space requirements for an educational program as proposed for the High School of Centralia, based on

standard academic requirements, would be as shown in the following table.

Table 11. Functional academic requirements for Centralia High School building.

No. of rooms :	Classroom classification :	Stations: (student):	Total student : stations:	Area requirements (sq. ft.)
2	Classrooms English Social Science	30	60	1200
1	Science Laboratory Classroom	20	20	720
1	Commerce	18	36	950
1	Arts and Crafts* Mathematics	16	32	600
1	Homemaking*	18	32	1000
1	Voc. Agr. and Gen. Shop*	18	<u>16</u>	<u>2000</u>
Total			196	6470

* For Community use also.
71.5 per cent utilization factor. 140 capacity.

The space requirements, as outlined in Tables 11 and 12, were determined by the use of modern school standards: National Council on Schoolhouse Construction (18, p. 82-111) and Standards for Schoolhouse Construction (21, p. 42-54), also through counsel with the school architect.⁴

⁴ Jas. W. Radotinsky, Architect, Kansas City, Kansas. Counsel.

Table 12. Additional facilities for Centralia High School building.

No. of rooms	Classroom classification	Stations (student)	Area requirements (sq. ft.)
1	Music* Dramatics Assembly	35	1350
1	Gymnasium* Auditorium	35	6300
1	Library* Study Hall Classroom	26	900
1	Health Unit Teachers' room Conference room		400
2	Toilets		<u>500</u>
Total			9750

* For Community use also.

FINANCING THE PLAN

Estimated Cost

The cost of the functional requirements outlined in Tables 11 and 12, including other pertinent requirements such as boiler room, storage, corridors, etc., estimated by the school architect is \$200,000.00. This is complete cost, based on new construction, equipment, functional design of standard school type.

Functional design provides a building wherein the structural frame is structural steel; the floor system of concrete on compacted earth fill; the exterior walls of face brick backed up with masonry blocks; interior walls of corridors, classrooms, toilets, the wainscot of walls are of glazed tile with space above of masonry blocks, painted. All floors in toilets are colored cement; all floors in corridors, classrooms, activity room, are of asphalt tile. All ceilings are of acoustical tile or acoustical plaster. The roof is metal deck welded to steel frame with insulation and built-up roof applied thereon. The heating is a split system; the plumbing is standard; the wiring is standard.

With a 12 per cent increase of the estimated cost, the building could be of the standard school house finish and design. This provides the same structural frame and exterior, the differences being that the interior finish of walls are plastered and painted; the millwork and trim are more elaborate; the first floor is a framed, concrete floor; the roof slab is poured concrete on a steel mesh with insulation and built-up roof applied thereon.

Ability to Pay

The Centralia Rural High School district is large, covering an area of 115 square miles. It has an assessed valuation of \$4,370,315 with no bonded indebtedness. The Elementary

School and the City of Centralia are also free from debt. The assessed valuation compared with the real valuation is approximately 50 per cent of the real valuation in Nemaha county. The high school tax levy for the year of 1947-1948 was 2.85 mills. This is below the average levy of 5.1 mills for rural high schools in Kansas, as shown in the Kansas Government Journal (10, p. 42). As compared with the cost of education in the large cities of Kansas, the cost at Centralia is very low. Wolfe⁵ collected data to show the 1947 tax rates for school purposes in the 18 first and second class Kansas cities which range in population from 10,000 to 25,000 inhabitants. Wolfe's study shows an average of 18.2 mills levy for the 18 cities.

Kansas law Sec. 72-2001, G. S. 1935 (14, p. 24) provides that a bond issue may be as large as 5 per cent of the assessed valuation. This would allow a bond issue to the amount of \$218,500 compared with the \$200,000 estimated cost of the proposed building.

A \$200,000 bond issue could be carried with an additional levy of 3 mills for a period of 20 years. With the economic conditions in the community above normal, it would not necessitate a heavy tax burden on the district; nor would it seem to be a heavy tax burden in less prosperous periods.

⁵ Supt. W. D. Wolfe, Atchison City Schools, Atchison, Kansas. Panel Consultant, "School Building Needs and How to Meet Them." University of Kansas, June 10, 1948.

Method of Financing

The installment method for redemption of long-term credit, in the form of serial bonds, is the most advantageous for school building programs. School bonds have always had an enviable reputation as securities. Consequently, credit of this kind has always been secured at the lowest interest rate.

Bond interest rates at the present time are low, selling for an average of approximately 2 per cent in 1947. According to Kansas Government Journal (11, p. 19), many school districts have held bond elections recently with the intention of getting the money for new buildings while rates are low. The actual construction of the building to be delayed, with the expectation that the high construction costs will lower within the next five years. School Executive (3, p. 14) shows that a school building which costs \$100,000 in 1939 will cost \$175,000 in 1947. Radotinsky⁶ estimates that building costs have risen 15 per cent more during 1948. Also, that the construction cost in a small town is higher than it is in a large city, due to the higher cost for skilled labor in a small town. The skilled laborers, who are imported mostly from the cities, are demanding a cost of living subsistence pay in addition to their regular hourly wage. The high cost of material, the

⁶ Jos. W. Radotinsky, Architect, Kansas City, Kansas. Interview.

labor situation, and living conditions make the contractors reluctant to bid close to the estimated cost plus a normal profit. They are making large allowances for uncertainty.

Under the present circumstances it would be unwise for the Centralia Rural High School to undertake the construction of a new building. However, now is a very favorable time to sell long-term bonds in securing the money for construction in the near future. This statement is verified by the Kansas Government Journal (11, p. 19) which shows that 51 school districts voted in favor of \$6,025,700 for school building construction, and 11 defeated issues amounting to \$1,563,000 during 1947.

The Board of Education of Centralia Rural High School, along with several other school-minded patrons, recognized the favorable bond market of 1947, and an attempt was made in September to get the necessary 50 per cent of the legal voters, Kansas School Laws (14, p. 24) Sec. 72-2001, G. S. 1935, on a petition in order to hold an election. This attempt failed to get the necessary 530 signers by 130 names.

Information gained from contacting the voters would lead to the conclusion that the attempt failed because of the following reasons:

1. Lack of publicity.
2. Lack of organized effort.
3. Opposition to the amount of the bond issue.
4. Patrons were in a depressed frame of mind because of

hot weather, drouth and poor prospects for crops.

5. Lack of information about the school.
6. Lack of understanding of school needs.
7. Lack of the appreciation of the real needs.
8. Lack of interest in the school.

In order to reveal any change in community opinion since 1947, a questionnaire sampling survey was made during the latter part of June, 1948. A total of 400 double post cards, addressed to "Centralia Boxholder" were mailed June 24, and by July 7, 142 had been returned.

The following is a duplicate of the message and questions used:

MESSAGE

Dear Patron of Centralia Rural High School:

In one of my college courses this summer, I find it necessary to survey the needs and desires of the patrons of Centralia as to a new building.

If you will fill out the attached card and return it to me as soon as possible I will appreciate it very much.

Thanking you, I remain

Sincerely yours,

Lee R. Cashman

QUESTIONNAIRE

1. Do you think that Centralia needs a new High School building?

YES

NO

2. Do you think the planning of this
 building program should start soon?
- YES NO

Table 13. Results of the questionnaire sampling survey.

	: Question Number 1 : Question Number 2	
YES	50	42
NO	<u>92</u>	<u>100</u>
Total	142	142

The result of the questionnaire, Table 13, even though only 35.5 per cent of the cards was returned, would indicate that public opinion is still opposed to a new building.

The weakness of a survey of this type is the fact that the majority of people will not send back the cards. As a general rule, the radicals, for or against, will answer. To have made this sampling statistically significant, one would have needed to contact each individual personally and receive an answer of "yes" or "no" for each question.

PROPOSED PLAN INTO ACTION

Informing the Public

An apparent weakness of the Centralia Building program,

would seem to be that the public has not been adequately informed of the educational needs for the community. This, to some extent, may be a result of the newly organized district and that many of the patrons have not realized the responsibility of supporting a high school program.

One concludes from the results of public reaction that a well-organized publicity campaign must be put into action in order to win a bond election. Principles to follow for presenting a building campaign as discussed by Needer (20, p. 1-28) would include:

1. Make certain that the tax requested is really needed and can be justified and defended.
2. Attend to all legal details pertaining to the tax or bond proposal and to the election.
3. Avoid "overselling" as well as "underselling" the bond proposal.
4. Finance the campaign with private funds, not with public money.
5. Make the campaign from one week to no longer than a month.
6. Hold the election, if possible, during the school term rather than during the vacation months.
7. Request sufficient bonds, thus avoiding the necessity for later campaigns.
8. Tell the truth concerning all issues of the campaign.
9. Use clear and interesting campaign material.

10. Make certain that all eligible voters are approached.
11. Deal with the opposition in a fair and courteous manner.

12. Obtain the confidence of the people by running an efficient school system.

13. Conduct a continuous public relations program year in and year out.

14. Make use of the results of previous school elections.

15. Avoid too much participation in the campaign by students and school employees.

16. Do not threaten the voters.

17. Use a positive approach and bring out the good things being accomplished, also stressing urgent needs.

The public must be made to feel that it is responsible for the campaign; but instillation of this feeling into the public must come from only a few at first. The school officials, faculty, and strong supporters of the school should present the building program to the civic organizations for discussion. The next step would probably be to call a meeting for the representatives of the local organizations to meet with the Board of Education for the formation of campaign committees. The local school head is often chosen as chairman. Some school boards prefer that some other leader that is capable and tactful be chosen rather than a school man. School men chairmen are some times accused of promoting a vested interest. The success of the campaign depends on the chairman, as it is his duty to execute the campaign to a successful conclusion.

The committees to be formed are:

1. Finance committee will be given the task of obtaining sufficient funds from private sources to finance the campaign.
2. Speakers committee will secure speakers, and provide them with data and other material.
3. Publicity committee will make proper contacts with newspapers, motion picture houses, and other publicity agencies in the community.
4. Endorsement committee will obtain written endorsement of organizations and prominent individuals such as: The American Legion, Fraternal Orders, Lions Club, School Alumni Association, Farm Bureau groups, and Churches.

The campaign program should be short and intensive, not over one month before the bond election. An open letter from the board of education to the patrons of the school district is considered to be the most effective single procedure in campaigns for school support. The letter must be carefully composed and be in good form in every way. It should present some statistics, but not too many. The letter should be only one page in length and be signed by each board member. Attempts should be made to get the letter to each voter in the district, as well as having it published in the local newspaper.

Most newspapers will be glad to run campaign material free of charge. An editor who is an ardent supporter of the issue can be of tremendous aid to the cause. Business firms often run campaign slogans as a part of the newspaper advertisements

of their merchandise or services. The school newspaper should devote a special edition to the bond issue, and may contain an open letter from the board of education, a marked ballot, architect's sketch of the proposed building, posters, editorials, reports of interviews, endorsements, and students' essays.

Other methods for arousing public interest may be: personal letters and personal interviews, use of posters in windows of business houses, car stickers on windshields of cars, school exhibits in down town window, school visitation days or exhibit days such as "open house", and the use of the telephone to those who have not voted on election day.

Good practice for the board of education immediately after election is to thank all persons who assisted in the election and to thank the voters for the support they gave. These "thanks" should be extended whether the bond issue is won or lost. Under no circumstances make any comments condemning the voters for their "no" votes. Scolding the voters is never effective campaign technique, and never leaves a good impression for future campaigns.

It is democracy in action when the entire community is taken into confidence, be sure that their need is real, hold a public meeting and ask for cooperation of the people, who, after all, are going to have to pay the bill. Failure of bond elections often happen when the people were not taken into confidence and suggestions solicited.

Legality of Bond Election and Sale of Bonds

The bond election step in a building program is an important one. Care must be taken to follow all legal requirements. Hawkes⁷ emphasizes the importance of legal advice and recommends the employment of a well-known bond attorney for handling all matters pertaining to the election and bond sale. This should avoid any legal misstep. Handbook for Kansas Public Improvements (9, p. 164) gives several examples where elections were declared void because of the wording of the ballot.

Handbook for Kansas Public Improvements (9, p. 163-164) gives an outline of bond election procedure:

1. The election must be held within 30 days after the necessary requirements have been complied with. Note: This appears to refer to those acts constituting the foundation of the election, such as the filing of a sufficient petition if a petition is required, resolution, ordinance or other act of the governing body if it initiates the proceedings, etc.

2. Or it must be within 90 days if such a period includes the date of a general election. It is not clear what is meant by "General Election" but the statutes and cases indicate it means the general election be held in November. Note: This probably does not mean that if a general election will be held within 90 days the bond election must be postponed until the general election, but rather, that if a general election will occur within 90 days, the bond election may be postponed until the general election.

⁷ Supt. C. E. Hawkes, Salina Public Schools, Salina, Kansas. Class instruction.

3. The notice of election must be published in a newspaper of general circulation in the municipality once each week for three (3) consecutive weeks.

4. The first publication must be not less than twenty-one days prior to the election.

5. If publication is in a weekly, semi-weekly, or tri-weekly paper, the publication may be on any one day of the week upon which the paper is published.

6. If publication is in a daily newspaper, the publication must be on Wednesday or Thursday of each of the three consecutive weeks.

7. The notice:

- a. Must set forth time and place of holding the election.
- b. Must set forth the purpose for which the bonds are to be issued.
- c. Must be signed by the officers or a majority of them having authority to call the election.

8. The election is held at the usual place of holding elections.

9. The election must be conducted by the usual officers or persons provided by law for holding elections in the municipality.

10. All qualified electors are entitled to vote.

11. Election must be by ballot. Ballot must comply with requirements for an official ballot for candidates for public office so far as applicable.

12. The proposition submitted is printed on the ballot preceded by the words, "Shall the following be adopted?" and followed by the words, "To vote in favor of the bonds make a cross X mark in the square after the word 'yes'" "To vote against the bonds make a cross X mark in the square after the word 'no'", followed by sufficient squares.

13. If more than one proposition or question is submitted on the ballot, they must be separately numbered and printed and be separated by a broad solid line one-eighth of an inch wide.

14. Election governed in all respects and the results declared according to the rules and regulations for holding elections in the municipality.

According to Clark (3, p. 14), school boards still have much to learn concerning the best methods of selling bonds in order to get low bids. It was found that during the month of May, 1947, some school districts sold bonds for less than one per cent; while others paid over four per cent. Generally speaking, school boards do a poor job of selling bonds.

In choosing a market for selling bonds, a district should consider the best selling seasons; avoid holiday seasons, and hot summer months.

Many investment companies today are willing to furnish the legal advice regarding the bond election, petitions, printing of bonds as well as furnishing material for the election campaign. This is supposed to be free service with the option of buying the bonds at a rate agreed upon before the election. No doubt, this type of service is in reality more expensive than for the district to employ its own bond attorney.

Where the sale of bonds is to be a public sale, then there must be two publications, one in a newspaper of general circulation in the county and another in the official state paper. Notice of sale is to fully describe bonds as to:

1. Amount of the bond issue.
2. Date of the bonds.
3. Maturity of the bonds.

4. Rate of interest.
5. Time when bonds will be sold.
6. Place where bonds will be sold.
7. Name of the officers having charge of the sale.
8. It is well to state that any and all bids may be rejected.

9. What the bonds are issued for.
10. Legal opinion by some well-known bond attorney.
11. A certified check for two per cent of the total amount of the bid must accompany each bid.

A prospectus available to bidders should be provided to include the following information concerning the school district: population, valuation, industries, social life, total debt load, annual payments on debt load, and names of board officials.

CONCLUSIONS

This study was based on data obtained from a functional survey of the Centralia Community and School System.

Conclusions drawn from the study are:

1. Ability to finance a building program was made possible by organization of the Rural High School district.
2. Modern educational programs necessitate the need for buildings of functional design and equipment.
3. School administrator is expected to be the professional

adviser to the board of education.

4. Centralia has a need for a new building.

5. Elementary School is handicapped more by lack of space than High School.

6. An increase of approximately 25 per cent in the Elementary School enrollment may be expected by 1956.

7. High School enrollment will not increase an appreciable amount until 1960.

8. Outside of the birth rate increases, the population will remain constant.

9. The greatest weakness in the present school program is lack of space and outmoded facilities.

10. The patrons of the district seem slow to understand school needs and to recognize the opportunity which they now have for a building program.

11. A well organized publicity program will be needed to win the bond election.

12. Careful consideration of legality must be given to the bond election and bond sale.

13. The rural community has need for an enriched and expanding curriculum.

14. Vocational training has a definite place in the rural high school curriculum.

15. An experienced school architect can give valuable assistance for the administration of a school building program.

16. Building costs are high but this can be offset some by the low interest rates on bonds.

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