9-1-2010

A Program Evaluation of the Building Construction of Bellevue Elementary School for the Bellevue Public Schools

Matthew Blomenkamp

University of Nebraska at Omaha

Follow this and additional works at: https://digitalcommons.unomaha.edu/studentwork

Part of the Education Commons

Please take our feedback survey at: https://unomaha.az1.qualtrics.com/jfe/form/SV_8cchtFmpDyGfBLE

Recommended Citation


https://digitalcommons.unomaha.edu/studentwork/3464

This Dissertation is brought to you for free and open access by DigitalCommons@UNO. It has been accepted for inclusion in Student Work by an authorized administrator of DigitalCommons@UNO. For more information, please contact unodigitalcommons@unomaha.edu.
Abstract

A PROGRAM EVALUATION OF BUILDING CONSTRUCTION OF BELLEVUE ELEMENTARY SCHOOL FOR THE BELLEVUE PUBLIC SCHOOLS

Matthew Blomenkamp

University of Nebraska Omaha 2011

Advisor: Dr. Peter J. Smith

The purpose of this study was the identification of data to be used in creating a process to be employed in future construction in the Bellevue Public School District. Use of a process will enable the district to become more efficient, effective, and financially responsible in future construction projects.

In this quantitative study, Michael Patton’s Utilization Focused Evaluation (UFE) Program Evaluation model was used. The population included Central Office Administration in the Bellevue Public Schools including the lead architect, and faculty and staff members from Bellevue Elementary School. Archival data including board policy for the Bellevue Public Schools, school board meeting minutes, utility bills, and appraisal surveys were used to evaluate the school district’s construction practices. The study also included comparison of appraisal data from surveys administered to Central Office Administration including the lead architect, Bellevue Elementary School certified employees and Bellevue Elementary School classified employees. The analysis of this program evaluation included descriptive statistics, appraisal survey data, and an analysis of variance (ANOVA).

The results of this program evaluation indicate: (1) criteria, financing, construction administration and design of school buildings for the Bellevue Public
Schools to be compliant with school board policy; (2) perceptions of school site, plant maintainability, educational adequacy, and environment showed no significant differences; (3) perceptions of structural and mechanical features, and school safety and security were statistically significant. The information gathered from this study suggests that the school district should utilize the building process developed by the researcher to plan, finance, construct and complete future school construction projects.
Acknowledgements

I would like to express my appreciation to the individuals who supported and encouraged me throughout this project. Without their assistance, this would not have been possible. In particular I am truly grateful to:

Dr. Peter Smith, whose statistical support and knowledge of program evaluation directed my path to complete the study.

Dr. Kay Keiser, whose wisdom and direction provided valuable assistance.

Mr. Kyle Fairbairn, whose understanding and knowledge of finance and construction of Bellevue Public Schools provided pertinent suggestions.

My mother, Dr. Jean Blomenkamp, for her belief in my abilities and encouragement throughout my graduate path.

My father, Duane Blomenkamp, for teaching me to work hard and finish what I start.

My wife, Sarah, for her willingness to listen to and endure a husband who was often preoccupied with research and writing.
Table of Contents

Abstract .................................................................................................................................................. i
Acknowledgements .......................................................................................................................... iii
Table of Contents ............................................................................................................................... iv
List of Tables .......................................................................................................................................... vi
Chapter 1 .............................................................................................................................................. 1
  Introduction ......................................................................................................................................... 1
  Theoretical Frameworks .................................................................................................................. 4
  Statement of the Problem ............................................................................................................... 6
  Research Questions .......................................................................................................................... 6
  Definition of Terms .......................................................................................................................... 8
  Limitations ......................................................................................................................................... 9
  Delimitations ..................................................................................................................................... 9
  Significance of the Study ................................................................................................................... 9
Chapter 2 .............................................................................................................................................. 11
  Review of Literature ....................................................................................................................... 11
    History ............................................................................................................................................. 11
    Need ............................................................................................................................................... 12
    Finance ........................................................................................................................................... 13
    Assessment ...................................................................................................................................... 16
    Process ............................................................................................................................................ 19
    Design ............................................................................................................................................ 20
    Contracts ........................................................................................................................................ 27
    Construction ................................................................................................................................... 28
    Completion ...................................................................................................................................... 29
    Future Trends .................................................................................................................................. 31
Chapter 3 .............................................................................................................................................. 35
  Methods ............................................................................................................................................. 35
  Introduction ....................................................................................................................................... 35
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>35</td>
</tr>
<tr>
<td>Population</td>
<td>38</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>38</td>
</tr>
<tr>
<td>Data Collection</td>
<td>40</td>
</tr>
<tr>
<td>Research Questions</td>
<td>41</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>42</td>
</tr>
<tr>
<td>Summary</td>
<td>45</td>
</tr>
<tr>
<td>Research Questions</td>
<td>49</td>
</tr>
<tr>
<td>Research Question 1.1</td>
<td>49</td>
</tr>
<tr>
<td>Research Question 1.2</td>
<td>51</td>
</tr>
<tr>
<td>Research Question 1.3</td>
<td>52</td>
</tr>
<tr>
<td>Research Question 1.4</td>
<td>54</td>
</tr>
<tr>
<td>Research Question 1.5</td>
<td>55</td>
</tr>
<tr>
<td>Research Question 1.6</td>
<td>55</td>
</tr>
<tr>
<td>Research Question 1.7</td>
<td>56</td>
</tr>
<tr>
<td>Research Question 2.1</td>
<td>56</td>
</tr>
<tr>
<td>Research Question 2.2</td>
<td>57</td>
</tr>
<tr>
<td>Research Question 2.3</td>
<td>58</td>
</tr>
<tr>
<td>Research Question 2.4</td>
<td>58</td>
</tr>
<tr>
<td>Research Question 2.5</td>
<td>59</td>
</tr>
<tr>
<td>Research Question 2.6</td>
<td>59</td>
</tr>
<tr>
<td>Research Question 3</td>
<td>60</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>71</td>
</tr>
<tr>
<td>Conclusions and Building Process</td>
<td>71</td>
</tr>
<tr>
<td>Conclusions</td>
<td>71</td>
</tr>
<tr>
<td>Method for Finance</td>
<td>73</td>
</tr>
<tr>
<td>Construction Administration Selection</td>
<td>74</td>
</tr>
<tr>
<td>School Building Design</td>
<td>75</td>
</tr>
<tr>
<td>Discussion</td>
<td>76</td>
</tr>
<tr>
<td>References</td>
<td>77</td>
</tr>
</tbody>
</table>
## List of Tables

Table 1 Utility Bills 62

Table 2 Descriptive Statistics 63

Table 3 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the school site 64

Table 4 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the structural and mechanical features 65

Table 5 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the plant maintainability 66

Table 6 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the school safety and security 67

Table 7 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the educational adequacy 68

Table 8 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the educational environment 69

Table 9 Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the school site, structural and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment 70
Chapter 1

Introduction

Considering the number of factors that impact student success, it is important for schools and school districts to maximize the influence of those things they can control. The effect of facility conditions have been shown to have significant impact on student success as well as teacher satisfaction (Roberts, Edgerton, & Peter, 2008). The Bellevue Public School in Omaha, Nebraska recognizes this and has taken the necessary steps to ensure the district facilities are well cared for and up to date.

Although the Bellevue Public Schools is the fourth largest school district in the state of Nebraska, a comprehensive study of construction and renovation practices has never been completed. Bellevue is the oldest town in the state of Nebraska. The school district has been in operation since 1858, when the first school, a three room structure made of grout (a mixture of crushed rock and lime), was erected. This three room building served 68 students and was valued at $600. Many changes have taken place since the 1860’s. In 1869, Bellevue built a common K-12 brick school building for $10,000. This, eventually, became Bellevue’s first high school. In the fall of 1964, students moved from that building into the new Bellevue High School where they remained for 15 years. The new building was built at a cost of $82,000 of which $35,000 was an outright grant from the federal government. The building would undergo many renovations and expansions to accommodate the growth in Bellevue. In 1977, Bellevue High School separated into two high schools. Bellevue West High School opened its doors in the fall of 1977 and Bellevue High School was renamed Bellevue East High School (Lewis, 1978). Throughout its history Bellevue has grown into one of the largest
school districts in the state of Nebraska. Currently, the Bellevue Public Schools operate 25 buildings including: two high schools, three middle schools, fifteen elementary schools, and five district level buildings.

Like every school district in the United States, the Bellevue Public Schools is required to provide facilities for all students. Adequate space must be available, even when economic conditions are unfavorable. In the year 2011, the need for adequate facilities is more important than ever, as more than half of the school buildings in the United States have unsatisfactory learning environments including poor ventilation, lack of appropriate acoustics for noise control, and sub-par security systems (Holt, Wendt, & Smith, 2006). By providing healthful and comfortable learning environments, school districts such as Bellevue can boost student achievement (Erickson, 2009). An independent study of the Washington D.C. School District concluded that if the physical environment of school buildings was improved, student achievement would increase by 5% to 11%. The study went on to poll 72,000 D.C. teenagers, asking what they would do with more education dollars. Overwhelmingly, the majority stated they would use the money to improve the maintenance and construction of their buildings (Kennedy & Agron, 2004). Poudre School District in Ft. Collins, Colorado found that optimizing the learning environment in their newly built 209,000 square foot Fossil Ridge High School improved students’ test scores (Watts, 2008). Further studies demonstrate that smaller class sizes and small schools provide a better learning environment for children (Kennedy & Agron, 2004). Currently in Bellevue, the teacher to student ratio in primary grades is 20:1 and in secondary grades is 23:1 (Fairbairn, personal communication, November, 2010).
School building construction in the United States is driven by enrollment growth (Kennedy, 2009). Bellevue is no different. Over the past 15 years, student enrollment has increased by 45%. Currently, the Bellevue Public Schools serves 10,043 students (Fairbairn, personal communication, November, 2010).

Facilities that are outdated and poorly maintained prevent students and teachers from performing to their capabilities. Forty-three percent of existing schools in the United State were built in the 1950’s and 1960’s (Rydeen, 2008). The Bellevue Public Schools built twelve new schools during the 1950’s and 1960’s, accounting for 48% of the schools owned by the district in 2010 (Lewis, 1978). Along with vocational schools that were built in the 1970’s, the average age of today’s public school building in the United States is over 42 years old (Cutshall, 2003). In an article published a few years ago in American School and University, “Top School Design,” ideas for a 21st century school included: a fresh approach to classroom furniture and layout, creating a larger physical classroom, technology infusion and schools that are flexible and highly efficient (Cutshall, 2003).

In August of 2010, Bellevue’s newest elementary school, Bellevue Elementary began operation. Due to the importance of facilities in the overall education of the children in Bellevue, an evaluation of construction, construction management, bidding, construction finance safety, and usability of the recently completed Bellevue Elementary is necessary. An extensive evaluation of this process will provide valuable information to board members and district administrators in the Bellevue District in determining the proper course of action for future school construction.
Theoretical Frameworks

Education has long been a target for evaluation. From using verbal mediated evaluations as part of the learning process in Horace Mann’s comprehensive reports on Massachusetts education in the 1800’s, to the emergence of contemporary program evaluation in the United States Elementary and Secondary Act of 1965, people have been using evaluation in education (Fitzpatrick, Sanders, & Worthen, 2011). Evaluation can be used to address the anecdote, “As not everything can be done, there must be a basis for deciding which things are worth doing” (Patton, 1997, p. 11). Without specific criteria about which to focus, data can be interpreted to mean almost anything. Program evaluation is a systematic collection of information about the activities, characteristics, and outcomes of a program. It is used to make judgments, improvements and informative decisions about future programming. More specifically, the decision-oriented approaches of program evaluation were created to address problems encountered with evaluation in the early 1970’s. The rationale of these approaches is that evaluative information is a cornerstone to making sound decisions. Using these decisions can effectively serve policy makers, administrators, managers, and staff. Evaluating a program includes asking several important questions. What is the purpose of the evaluation? How will the information be used? What will be known after the evaluation that wasn’t known already? What actions will leaders be capable of taking due to the findings in the evaluation?

This study was based on program evaluation theory. Program evaluation theory is a systematic collection of information about the activities, characteristics, and outcomes of a program. It may be used to identify goals and increase commitments (Patton, 1997).
James Thompson found that “using evaluation helps organizations reduce uncertainty while increasing control over the multitude of contingencies of which they are faced” (as cited in Patton, 1997, p. 15). By participating in an evaluation, participants have the opportunity to learn the logic of evaluation. Program evaluation will be used as a guideline process for gathering quantitative data about the construction practices of the Bellevue Public Schools through the design, finance, and erection of Bellevue Elementary School. More specifically, the researcher will use Michael Patton’s Utilization Focused Evaluation (UFE) as a measurement tool to identify and interpret a variety of characteristics representative of Bellevue Public Schools when it constructed Bellevue Elementary School. The UFE model will be used to assist in making judgments, improvements, and informed decisions about future projects in Bellevue.

More specifically, the information gathered will provide data that would be beneficial for future planning (Patton, 1997). Quantitative information will be used to create a process for future construction and will be measured using descriptive, informative, and appraisal data. Descriptive data was gathered from district documents to determine practices used in construction design. Informative data, essential in reporting choices in financing, design, and construction was gathered. Appraisal data will assist district leaders in understanding the strengths and weaknesses of the construction of Bellevue Elementary School and to determine if the building has met the needs of the occupants. Shared understandings and standardized procedures from qualitative research will provide a knowledge base that future district employees and school board members may use to guide them through building projects (Bloom, Fischer, & Orme, 2006).
Statement of the Problem

The purpose of this study is the identification of data which will be used in creating a process to be employed in future construction in the Bellevue School District. Use of a process will enable the district to become efficient, effective, and financially responsible in future construction projects.

Research Questions

1.1 What criteria does the Bellevue Public Schools use when determining the need for additional school buildings in the Bellevue Public Schools?
1.2 What is the method for financing school buildings in the Bellevue Public Schools?
1.3 How was the construction administration determined for building Bellevue Elementary School?
1.4 Why was the particular construction administration for Bellevue Elementary School selected?
1.5 How was the building design determined for the most recent school building: Bellevue Elementary School?
1.6 Why was the particular design used for Bellevue Elementary School selected?
1.7 Is the design used for Bellevue Elementary School efficient and effective financially?
2.1 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to the school site?
2.2 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to structural and mechanical
features?

2.3 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to plant maintainability?

2.4 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to safety and security?

2.5 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to educational adequacy?

2.6 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to the educational environment?

3 Was there a difference between faculty, staff, and district administration in total perceptions of Bellevue Elementary as they are related to school site, structural and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment?
**Definition of Terms**

The following terms will be used consistently throughout the study:

**Ground Loop/Source Heat Exchange Systems:** a type of Heating, Ventilization, and Air Conditioning (HVAC) that transfer heat back and forth between the earth and an indoor space where fluid circulates through pipes, creating connection with the earth below the frost line where the temperature maintains between 45 and 55 degrees (Sanford, 2007; McGuire, 2009).

**General Contractor:** a company the school district hired in conjunction with the architect to design, plan, and build Bellevue Elementary School. The General Contractor is responsible for the building schedule, budget, and commissioning of Bellevue Elementary School.

**Sub-Contractor:** a company the General Contractor hires to complete work throughout the building that they themselves are not capable of finishing. The Sub-Contractor’s fee is included in the General Contractor’s bid to the school district.

**Architect:** the individual who designed Bellevue Elementary School and advised district personnel throughout the construction process.

**Program Evaluation:** pertinent information used by those who hold a stake in whatever is being evaluated, helping them to make educated, informed decisions (Fitzpatrick, Sanders, & Worthen, 2011)

**Utilization Focused Evaluation:** a type of Program Evaluation that begins with the premise that evaluations should be judged by their utility and use; the focus being on intended use by intended users (Patton, 1997).
**Limitations**

1. Only Bellevue Elementary School will be included in this study.

2. Bellevue Elementary School has been in operation for only two years.

3. Data collection will be limited to individuals involved in the construction and operation of Bellevue Elementary School.

4. This study will be subject to weaknesses inherent in survey research.

**Delimitations**

1. This study will be limited to the Bellevue Public Schools.

2. The boundaries of the study will include the use of the UFE model only.

3. A portion of the study will be completed via the use of a survey.

**Significance of the Study**

Although school building construction has taken place over the last century in the Bellevue Public Schools, no formal process has existed to guide school officials in creating efficient, effective, and financially sound school facilities. The data collected in this study will be used to create a process used by Bellevue school officials in future school building construction. The process also will assist school officials in other districts in future school building construction.

**Organization of the Study**

A review of the selected literature is presented in Chapter Two. The review of literature provides a history of school construction, methods to assess the need for construction, methods of finance, construction options, and future trends. In Chapter Three, the researcher will discuss the rationale for using Michael Patton’s Utilized Focused Evaluation Model as the study design. The researcher will also identify the
population of the study, selection of survey measurement tools, collection of data, and the analysis procedures. In Chapter Four the researcher presents the specific research findings for each of the three research questions, as well as all sub-questions posed in this study. Chapter five will include conclusions and recommendations for future construction projects in the Bellevue Public Schools.
Chapter 2

Review of Literature

History

The classroom environment has been evolving since the 1800’s when one teacher taught every student in a one classroom schoolhouse. Urbanization brought about transitional schools in the 1840’s and ‘50’s, and with it the school setting transformed into separate reading and writing schools which housed classrooms with small rooms for recitation (Rydeen, 2009).

During the Industrial Revolution (1850-1950), large multistoried buildings were erected with self-contained classrooms. Schools were designed to address different learning styles and enhance new educational philosophies (Rydeen, 2009). In the 1950’s school buildings were constructed with the population of the baby boom in mind, with many of these facilities being built as quickly and as cheaply as possible (Kenndy & Agron, 2004).

In the 1960’s and ‘70’s schools were designed for the use of technologies, including overhead projectors and televisions. Individualized education was born. The open classroom concept was also adopted and schools were constructed accordingly. Many schools were designed with semi-open classrooms surrounding a resource center or library (Rydeen, 2008). Many vocational schools were also built at this time, and housed programs that needed large lab spaces, such as autobody repair bays (Cutshall, 2003).

The 1980’s were considered the Information Age where video and voice data systems were developed and incorporated. The open plan was adapted making way for
breakout spaces and flexible classroom structures for student learning teams and cooperative learning (Rydeen, 2009).

At the start of the new millennium, the Digital Age took a front seat in education. Technology created a global environment which responded to changing class sizes, curriculum and philosophies (Rydeen, 2009). Today, the recent advancement of technology has convinced many district officials to equip buildings with computers in each room, wireless online capabilities and distance learning labs (Kennedy & Agron, 2004). With this rapid technology turnover in today’s school systems, facilities must be easily converted as needed (Cutshall, 2003).

Need

Many difficulties arise when schools determine the need for facilities. Because these difficulties are, at times, subjective, assessing facility needs becomes a problem for school districts. Many schools have attempted to develop a better understanding of whether school buildings are substandard. In doing so, four major difficulties in determining need have surfaced. These four major difficulties include:

1. There is, often, a lack of good data on facilities and their conditions.
2. There are few clear standards of what constitutes an “adequate” facility.
3. It may be unclear how to account for routine maintenance repairs.
4. It may be difficult to understanding the costs of renovation (Odden & Picus, 2004).

Public schools in the United States are required to provide facilities for all students. They must provide needed space, even if the economic conditions are unfavorable. In the year 2011, the need for adequate facilities is more important than
ever. More than half of the school buildings in the United States have unsatisfactory learning environments, including poor ventilation, lack of appropriate acoustics for noise control, and sub-par security systems (Holt, Wendt, & Smith, 2006). By providing healthful and comfortable learning environments, schools can boost student achievement (Erickson, 2009). According to the United States Green Building Council AFT Study, poor indoor conditions result in lower student academic achievement, increased number of sick days, lower teacher retention, and increased medical costs. Quality indoor environments have been found to reduce absenteeism and improve student test scores (Luepke, 2007). Building construction in the United States is driven by enrollment growth (Kennedy, 2009b). Facilities that are outdated and poorly maintained prevent students and teachers from performing to their capabilities. Forty-three percent of existing schools in the United State were built in the 1950’s and 1960’s (Rydeen, 2008). Along with vocational schools that were built in the 1970’s, the average age of today’s school building is over 42 years old (Cutshall, 2003). Holt, Wendt, and Smith (2006), define healthy, high performance schools as, “buildings in which the design, construction, operation, and maintenance (1) use energy efficient and affordable practices and materials, (2) are cost effective, (3) enhance indoor air quality, and (4) protect and conserve water” (pp. 11-12).

Finance

When deciding whether to remodel or build a new facility, school administrators must obviously consider cost. Spending $50 to $75 per square foot for upgrades or renovation may fit the budget and be more cost effective than spending $200 per square foot for new construction (Rydeen, 2008). According to Kyle Fairbairn, Bellevue Public
School Director of Finance (personal communication, March 10, 2010), school districts interested in new construction or renovation may fund their projects in a variety of ways. The most popular method using bond campaign which requires community members to bear the financial burden of the project through property tax increases (Crader, Hollaway, & Stauffacher, 2002; Odden & Picus, 2004). When attempting to pass a bond, school administrators submit a plan of action to the board of education, community members, and staff stating the need and projected cost of the project (Crader, Hollaway, & Stauffacher, 2002). Once this is established, Mr. Fairbairn explained that the district administration visits with a financial institution in order to inquire about their bond authority, or the amount of money they are capable of bonding in order to complete a project. Once that amount is set, the district determines the tax rate to pay for the bonds though board approval. After approval, the bond issue is taken to the community for a vote.

Fairbairn stated another method of funding construction projects is to use board approved monies from the district building and site fund in the annual budget. However, due to budgeting limitations, using money from the building and site fund is not always a viable option. The amount of capital needed to renovate or begin new construction is not always available.

In 2009, the federal government provided a one-time stimulus package where school districts could use appropriations to renovate existing buildings, purchase equipment or build new structures. The stimulus package funds from these programs could be used only for building and site improvements dealing with special education or Title I students. Districts throughout the country have been able to take advantage of this
one time government allocation to build or renovate in areas the annual budget would not be able to fund (Fairbairn, personal communication, March 10, 2010).

Although not common, sometimes school districts receive money that is donated in order to build or update facilities. In 2000, the Wayne Public Schools Foundation in Wayne, Nebraska, was given a $200,000 donation from a Wayne High School alumnus. This donation was provided specifically to build a new track around the existing football field. Without this donation, the district would have needed to pass a bond issue in order to fund the new athletic facility project (personal communication, Rocky Ruhl, March 12th, 2010).

Schools are also able to finance large construction projects through fundraising efforts. Many school districts throughout the country have specific fundraising departments that raise money to offset costs the school cannot absorb. However, in smaller schools, many of these departments either do not exist, or are unlikely to generate enough capital to finance a large project such as an athletic facility or school building (personal communication, Kevin Broderick, April 5, 2010).

In 2009, another option public school districts were able to utilize to finance large building projects was government bonding authority. Under the American Recovery and Reinvestment Act (ARRA), Congress included aid for schools in two ways using bonding authority. The first option was Qualified School Construction Bonds. Twenty-two billion dollars became available for renovation and repair of public school facilities. Those who bought these bonds received tax credits which allow state and local governments to obtain interest free financing. The second option was Qualified Zone Academy Bonds. Two billion dollars were available for renovation and repair of public
school facilities. This program included noninterest bearing loans to schools with high rates of low income students (Klein, 2009). According to Klein, Judy Marks, associate director of the National Clearinghouse for Educational Facilities, stated “With these available bonds, and the cost of construction down, many believe right now is a ‘once in a lifetime’ opportunity to complete school construction” (p. 1). Projects that had been stalled because districts could not afford interest rates were funded using ARRA money.

**Assessment**

Many school buildings receive annual maintenance, however, the public school budget cannot consistently fund larger systems and facility failures (Rydeen, 2008). Limited funding from property taxes has led to the decline and delayed maintenance of repair for many school buildings, as well as the replacement of inadequate facilities (Holt, Wendt, & Smith, 2006). In 1991 The American Association of School Administrators (AASA) released “Schoolhouse in the Red” which states one in eight public school buildings in the United States provided a poor physical environment for learning (Kennedy & Agron, 2004). In 2001, The American Society of Civil Engineers produced a report revealing that American school infrastructures have improved since 1998 but only by a small margin. In 2003, the same report showed no improvement since 2001. The engineers’ report concluded that, “due to either aging, outdated facilities, severe overcrowding, or new mandated class sizes, 75% of our nation’s school buildings remain inadequate to meet the needs of school children” (Kennedy & Agron, 2004, p. 30).

When considering renovation or new construction, school administrators are responsible for confirming whether building systems are operating efficiently including,
but not limited to, heating, ventilation, air conditioning (HVAC), lighting control, fire alarms, energy management, elevators, security, and communications. Each of these areas must be under consistent evaluation in order to determine if they are operating properly or need to be fixed or replaced. This detailed process of building maintenance is called commissioning, and with many buildings as old as they are, commissioning can ensure system reliability, energy performance, indoor environmental quality, and proper facility operations. Commissioning also maximizes equipment life, detects potential problems, lowers energy costs, and helps train building operators (Erickson, 2009). The ASHRAE Standards Committee and Board of Directors defines commissioning as “a quality-oriented process for verifying and documenting that the performance of facilities, systems, and assemblies meet defined objectives and criteria” (Erickson, 2009, p. 30). The commissioning (Cx) quality-assurance process is important for schools not only because students and faculty deserve the healthiest and most comfortable environments in which to teach and learn, but because in many areas of the United States, Cx is becoming mandated by law (Wilkinson, 2010).

The structure of many American public school buildings is sufficient. However, the mechanical, electrical and plumbing systems of many buildings need upgrading. The food service equipment is old, and many buildings do not comply with the Americans with Disabilities Act (Rydeen, 2008). Commissioning can be applied to any part and/or system of a building. However, this doesn’t mean it needs to be applied to every part of every project. If the local fire marshal tests the fire alarm and fire doors, commissioning the fire system might not be applicable. On the other hand, if the school has had consistent problems with the alarms in the past and the fire marshal hasn’t helped,
commissioning might be a good choice (Wilkenson, 2010). Now, more than ever, school district officials are asking themselves whether their aging buildings are in need of renovation or replacement (Kennedy, 2009a).

The responsibility of paying for school construction and renovation lies with local districts and their patrons (Kennedy & Agron, 2004). Even before the current recession began, and the construction market diminished, public schools had a difficult time controlling expenses within their buildings. Projects were consistently in jeopardy. Today, those who have the funding for capital improvements can take full advantage of a stagnant market, because construction companies have started focusing their attention toward submitting proposals to public school districts (Kennedy, 2009b).

In many school districts, individuals working for the buildings and grounds department, as well as in facilities planning, do not have a background in construction management. Most of these individuals have an educational background. Administrators who become educated and informed about construction budgets are in better positions to capitalize with new project (Kennedy, 2009b). Many medium to large school districts are beginning to send members of their Central Office to Cx training courses. These people don’t have to be an engineer or technician, but should have a “common sense” understanding of construction and construction design. This training provides the district with individuals who have valuable insight into developing requests for proposals throughout construction projects (Wilkenson, 2010). Administrators who are best suited for construction projects are ones who have previous experience in this area. For those who haven’t been involved in building, experienced designers and contractors can assist with the project (Kennedy, 2003b).
Process

When a district decides to fund a project, regardless of scope, it should follow a specific process. The first step is the determination of need. Questions to be asked and answered include: Is the facility run down and not meeting code? Are there space constraints? And is the building technology out of date or will an upgrade or new building reduce costs over a period of time, while providing a better educational opportunity for children? All parties involved must understand that a construction project is going to disturb instruction and distract the daily life at school. However, instead of ignoring these issues, it is beneficial for the administration to embrace the experience and use it as a learning experience (Jacobs & Sargo, 2007).

Using the information from the needs assessment, the next step is for school administrators to develop a building program. This program will list the types and quantities of spaces, as well as square foot area requirements. Later in the construction process the architect will adjust this information based upon industry standards and code requirements. When establishing need, the district must identify the role of the community. Is there a sole proprietor who will drive the project such as a superintendent or is a committee of individuals a better choice? Tapping community resources for information could also be of assistance in the early stages of a large project. Members that could be involved in creating planning, building and finance committees might include a commercial realtor, financier and/or fundraising specialist (Jacobs & Sargo, 2007).

The third step, before beginning a new project, is for school officials to determine the value of property in the district. Property values may have increased significantly
over time, and increased value means more available capital to borrow if the district needs to pass a bond issue.

Fourth, the individual or committee responsible for a new addition should strategically plan short and long term construction and budget goals. Can the district afford expansion at this time? Is this project right for the current programs implemented by the school system? Is it right for the programs of the future?

Cost considerations are the fifth step when determining need, as finance is an obvious driver to construction considerations. Sloped roofs cost more than flat roofs, glazed block is more expensive than painted and stone is easier to manage than brick. These are examples of questions that need to be addressed before construction begins (Kalina, 2007). Once the project’s strategic plan has been developed, it should then be shared with key stakeholders including students, community members, teachers, board members, alumni, and staff. The more support the easier obstacles are to overcome (Jacobs & Sargo, 2007).

Design

Gilbeault (2005) contends the next step in a public school project is choosing an architect and builder. A positive relationship between an architect and school district is vital to a successful construction project (Brennan, 2004). Renovation, new additions, and new construction projects will use related services provided by a design team. Both the architect and builder are responsible for design, as well as determining an overall cost. They may also help explore other options to building such as renting an existing facility, purchasing a leased facility, or contracting with neighboring school districts (Jacobs & Sargo, 2007). If a district chooses to hire for commissioning, the best time is
immediately after contracting a design team. A programming document should be available by the time the design team is hired. This document will outline the square footage of the building, who is to occupy what areas, food service and food preparation, gymnasiums, laboratories, pools, etc. It will also disclose budget, schedule, longevity, energy efficiency, and LEED certification requirements (if any). The programming document, along with the systems to be commissioned, give the commissioning team a "rough draft" which allow them the opportunity to set a reasonably accurate fee (Wilkinson, 2010).

During the design phase of a project, designated district personnel should be available to work with the architect and builder in order to set clear expectations and specifications (Erickson, 2009). Usually, at this time, a building site should be selected. The district should work closely with the design professionals when selecting a site, as these professionals will be able to provide insight into many location variables such as traffic and site access, elevation and draining issues, and utility requirements (Jacobs & Sargo, 2007).

Working with the school district, the design team will develop "standards specifications guidelines" indicating intent and performance criteria for the building and its equipment (Erickson, 2009). By setting these standards, districts can avoid unforeseen obstacles after construction has begun, as well as protect from conditions such as bad soil, or in a renovation, surprises such as an open wall and pipes found that are not on any existing drawings (Kennedy, 2009c). The building program will assist in developing preliminary floor and roof plans, estimated cost and life cycle, and defined square footage (Brennan, 2004).
Once the decision has been made to build, the type of construction delivery method chosen by the district is the next crucial step (Gibeault, 2005). Currently, the three most popular methods of construction delivery available to public schools are: 1) design-bid-build, which is the most traditional method, 2) design-build, where one company is responsible for both the design, and construction, and 3) construction management, where a construction manager is selected to oversee the development of the project (Gibeault, 2005).

Using the traditional design-bid-build method of construction, the school must choose an architect and team of engineers to design the building (Gibeault, 2005). The architect will develop plans according to the school district’s established program, quality, and budget (Jacobs & Sargo, 2007). Drawings will consist of specifications for structural, mechanical and electrical engineering, plumbing, technology, security, telecommunications, food service, and maintenance. The architect will provide a clear understanding concerning who will be performing what tasks and when (Brennan, 2004). Multiple construction companies or general contractors then have the opportunity to submit bids based upon completed plans and specifications from the architect. The school district will select a pre-qualified construction company (Gibeault, 2005). Usually the general contractor with the best or lowest price is awarded the contract. The design-bid-build method is consistently the most conventional approach for small to medium sized projects (Jacobs & Sargo, 2007). Design-bid-build projects are generally used by schools that build smaller or prototypical buildings.

Nebraska Education Law (2009) states:
Whenever any public school district in the state expends public funds for the construction, remodeling, or repair of any school owned building or for site improvements……the school board or its representative shall advertise for bids in the regular manner established by the board and accept or reject bids pursuant to section 73-101, except that nothing in this section applies to construction, remodeling, repair, or site improvements when the contemplated expenditure for the complete project does not exceed forty thousand dollars (p.317).

When construction companies are bidding for school projects, and are aware that they need to submit the lowest price in order to be selected, they may not include items in the estimate that are included in the documents. This may lead to change order claims which can lead to an uncomfortable relationship between the builder and the school district. It is recommended to pre-qualify all bidders when using the design-bid-build concept. Checking references and speaking with previous customers provide important background checks for all companies bidding a project. Any discrepancies or “red flags” should exclude companies without sufficient qualifications (Gibault, 2005). Many educational institutions use the design-bid-build method, awarding contracts to the architect, construction manager, and separate sub-contractors (Collins, 2009).

Over the past twenty years, the design-build method of construction has become more popular with public institutions (Collins, 2009). Different than a design-bid-build project, a design-bid project delivery identifies the needs of the school, selects a site for the building or renovation, sets a timeline and projects a budget. As stated earlier, a design-bid-build project has three distinct phases: an architectural design, a formal bidding process and the actual building of the facility. All have different agreements and
steps. In the design-build process, the three steps are joined together into one continuous process (Schiffer, 2002).

When using a design-build approach, the school district develops a detailed program statement, usually with the help of the architect. From there the district prepares a request for qualifications (RFQ), which sets the parameters which guide the development teams. At that time the school will invite design-build companies to submit qualifications for the project. From the RFQ responses, the school will select the company which exhibits design talent, managerial skill and construction savvy (Schiffer, 2002). When using a design-build option, the school district hires just one company, which is then responsible for both the design and the construction of the project (Gibeault, 2005). The school then creates a single contract with only one design-build company (Collins, 2009). Many times the bidders may be asked to interview with the district giving the district personnel the opportunity to ask questions. The architect and contractor work together as a team and have one single partnership with the school district. Because the design-build process allows little time for dialogue between the designer and the school, and moves to construction quickly, the importance of the RFQ cannot be overstated. RFQ’s are the key to meeting function, aesthetic, and construction quality standards. The single contract eliminates finger pointing over design differences, limits change orders and misunderstanding, and reduces adversarial climate common with a competitive-bid approach (Schiffer, 2002).

Disadvantages of using a design-build process are that it does not lend itself to more complex building and renovation, or afford the ability to amend a project once it has passed the design process. When using a design-build process it is recommended to
select relatively simple building types that lend themselves to a simple process of construction (Schiffer, 2002).

Advantages of the design-build option include allowing the owner to obtain firm costs for design and construction very early in the development process (Gibeault, 2005). The design-build approach brings together the architect, contractor, and engineer for a “package deal.” A design builder will meet performance needs, be accountable for cost and schedule, and assume the risk to deliver the completed project on time (McLeod, 2006). The design-build team will also know where to focus their efforts to sufficiently develop accurate cost estimates. Their evaluation of site development costs including: utilities, traffic lights, roofing, and windows help estimate a budget when approximately 40% of the project has been completed. Being able to accurately estimate cost is a benefit for school officials who have modest construction experience (Gibeault, 2005). With a design-build project, the design company will provide a turnkey project for the owner, meaning when construction is complete, all that is left is to “turn the key” and open the building (Collins, 2009). An adequately run design-build project can deliver a project efficiently, control costs and uncover alternative design directions. It may also limit change orders associated with disputes between a contractor and architect (Schiffer, 2002).

A final option school districts have when beginning construction is to hire a construction manager (CM). When using a CM the school district hires an individual who acts as the general contractor for the project. When using a CM, the school contracts the construction manager early in the process in order to receive his or her input for the planning and design. Similar to the general contractor in a design-bid-build process, the
construction manager is selected based on previous qualifications and recommendations. When the CM is hired, he or she determines a fee structure with the school at the beginning to the project (Gibeault, 2005). Once the construction manager is part of the team, he/she must provide pre-construction feedback to the school about building systems and materials (Jacobs & Sargo, 2007). He or she must also deliver all project costs in an “open book” to the school district (Gibeault, 2005). When the drawings are complete, the CM collects bids from multiple sub-contractors creating a plan to build the project with qualified sub-contractors who offer the lowest price (Jacobs & Sargo, 2007). The school is given a guaranteed maximum price (GMP) from the construction manager, helping to control the overall cost of the construction project. The GMP will always include the construction manager’s fee. A guaranteed maximum price is beneficial to schools because it holds the construction manager responsible for all subcontractors and material providers (Gibeault, 2005). The school still holds a contract with an architect for design services but the construction manager holds contracts with all prime contractors (Collins, 2009). When a construction manager approach is chosen, one significant benefit is the architect and the CM have usually worked together in the past. With a design-bid-build or design-build project, the two independent parties are most likely new to each other or have very little project experience together. The CM/architect team is also responsible for preparing drawings and specs for bids from prime contractors who can then bid separately for their portion of the work. This provides savings to the school district by not having to pay a general contractor for overhead and profit mark-up for each sub-contractor’s price (Collins, 2009).
The CM in the CM/architect approach is the individual who initiates the preconstruction process and oversees completion on behalf of the school district. He or she will work with the designer and the builder, but both will maintain their own independence, and both are under separate contracts. The construction manager approach is well suited for a district whose personnel have experience in school building construction or renovation (Gibeault, 2005).

Contracts

Another major decision the school district must consider is selecting the type of contract options and associated fees to use once a construction approach has been determined. When making this decision, the school has three options:

1) A Fixed Fee: With a fixed fee a contractor stabilizes a project cost, and the school is then responsible for this set amount whether the project costs more or less than this amount. Usually Design-Bid-Build projects use this approach (Jacobs & Sargo, 2007).

2) A Cost-Plus Fee: With a cost-plus fee the cost to the district is estimated but not guaranteed. A construction fee is set and could be either a percentage or fixed amount of the construction costs. The overall cost of the project can waiver. However, if the final cost is below the estimate, the district will save money. Construction Manager or Design-Build Team approaches use this option (Jacobs & Sargo, 2007).

3) A Guaranteed Not to Exceed (GNTX): With this approach a maximum final construction cost is determined. The district is responsible to commit to this bid. Then, if the total cost of the project is less than the GNTX, the school district
receives all or part of the savings. This approach may be used with all three construction approaches. However, the GNTX method is based more on the character and reputation of the builder (Jacobs & Sargo, 2007).

**Construction**

Once a construction delivery method has been chosen, submitted bids are reviewed and contracts are awarded (Jacobs & Sargo, 2007). The architect will review submittals or “shop drawings” that describe in detail what the contractor will install (Brennan, 2004). From there, the Project Budget can be set. The Project Budget is different than the Construction Budget because the Project Budget contains costs such as professional fees, contingency funds, and other items included in the project (Jacobs & Sargo, 2007). If the bids are over budget, the architect is then responsible to redesign. However, it is important that the school still have input so that the architect does not eliminate important functional features of the building or facility (Brennan, 2004).

Once the Project Budget contracts are signed, work can begin. At this time the architect becomes an administrator, assuring the project operates as intended. Weekly and/or monthly site visits, construction meetings, tours and conference calls are usually standard responsibilities of the architect (Jacobs & Sargo, 2007). School districts usually determine the number and duration of the site visits (Brennan, 2004). Paperwork from the construction team to the architect for review and to the school district for approval and payment are standard during this phase. Common paperwork generally includes pay applications, lien waivers, RFI’s (request for information) and change orders (Jacobs & Sargo, 2007).
When approving the budget the school district representative and the architect/construction manager establish a contingency fund to pay for change orders. This is necessary because the architect or construction manager is allowed to make some errors. Project budgets do not allow for the level of detail required to provide a “perfect” set of plans. Typically, a design bid build school construction project will encounter a 0.5% to 1% cost of the initial bid and a design build project will encounter a 3% to 5% cost of the bid in change orders for new construction, and a 7% to 10% cost for renovation projects (Kalina, 2007).

Fee arrangement is also a point of negotiation and comes in a variety of forms. The two most common forms of payment are lump sum and percentage of construction cost. A lump sum establishes a fixed price for basic services. A percentage cost allows the project to be paid in percentages as the construction is completed. Small projects are usually paid either by lump sum or percentage cost. However, large projects are paid in percentage costs primarily due to the magnitude of the final bill, correlated with a school district accounts receivable throughout the budget year (Brennan, 2004).

Completion

Some school districts will use request for proposals which combine commissioning and test, adjust, and balance (TAB). TAB consists of the final piping and ductwork adjustments that assure water and air volumes are in accordance with the original plans and specifications. If TAB is not executed correctly, vital equipment may not work appropriately, therefore, failing to heat and cool the building. Without this process, temperature related complaints could arrive shortly after occupancy (Wilkinson, 2010). According to Ralph Gladbach, architect at Hill Ferrell Associates in Bellevue,
Nebraska (personal communication, March 30, 2010) once a project is close to being finished, the architect and/or construction manager will create a punch-list of work items that need to be completed. At that time a certificate of substantial completion (CSC) is issued, allowing the school to start moving furniture and supplies into the building or addition. The date the CSC is issued begins a one year warranty for the construction project. As a project is completed, commissioning can be implemented along with the work order punch-list into the school building’s operations and maintenance plan (Erickson, 2009). According to Gladbach, after the punch-list is completed and approved by the owner and architect, and commissioning is finished, a certificate of occupancy is issued by the city or authority having jurisdiction. The certificate of occupancy is the last step in the construction process and allows students, teachers, custodians, etc. to enter and occupy the building.

When community leaders, board members, superintendents and/or principals are deciding whether or not to build or renovate their facilities, having a plan in place, staying proactive, and thinking sustainably are important concepts to embrace. The path from concept to completion is lined with pitfalls, big and small, which can affect whether students and staff members perceive the building as a place that enhances learning or just another structure filled with desks and chairs. Being able to develop and execute a plan is the difference between a successful project and a disastrous one. A school is different than an office building. There is a date that completion must occur, and there is no leeway. Students, parents, community members, board members, trustees, and alumni know what they want in a new school building and how quickly they want it. They are interested in having state of the art facilities but feel the cost should be conservative.
Those directly responsible must be able to separate the feasible from the fanciful and devise a workable, efficient, sustainable plan (Kennedy, 2003a).

**Future Trends**

Over the past few years many schools in the United States have begun to examine new construction methods for building school buildings. The idea has evolved from constructing the most cost effective buildings to developing the most sustainable building design. A recent study by McGraw-Hill Construction states that the education sector is the quickest growing market for sustainable “green” design (Kure, 2007). Many school districts are building buildings that are recognized for a Leadership in Energy and Environmental Design (LEED) rating from the U.S. Green Building Council (USBGC). Developing LEED certified buildings has only begun happening during the past ten years in the United States. According to the Green Building Council’s database, approximately 120 K-12 school buildings, nationwide, had received LEED certification in 2001. However, by 2009, more than 1000 schools applied for the certification (Kennedy, 2009). Many of these schools are “going green” using alternative funding. Grants and government incentives are making it more and more feasible for school districts to construct energy efficient buildings. More importantly, the lifetime cost of a green building is attractive. Some experts agree that while constructing a green building is initially more expensive than conventional construction projects, the savings in utilities over the lifespan of the building far outweigh the initial cost difference. Others argue that the initial cost of a green building is similar to a traditional design and when school leaders, board members, and CEO’s make the judicious decisions during the design and construction of a building, dramatic reductions in maintenance and operating cost will
follow, often with the initial cost of the building being effective (Lupke, 2007). Some maintain that it is a misconception that constructing a green building is more expensive than a traditional building. They argue that it is not more expensive, that any excess cost stems from a lack of building experience (Qualk & McCown, 2009). Building an efficient, financially responsible building is possible using more resilient, durable, and recycled materials, state of the art mechanical systems and water conscious measures in architectural design. The USBGC estimates that the savings generated over the lifespan of a new “green” building can be as much as 20 times greater than the original investment (Lupke, 2007).

Methods used across the country today to “go green” include, but are not limited to, Ground Source Heat Pumps (GSHP), energy efficient climate controls, sink and toilet sensors, light sensors, wind power, non-polyvinyl carpeting, energy efficient windows, and solar panels. Specifically, Ground Source Heat Pumps are high efficiency, environmentally sound HVAC systems that use the earth’s energy to serve as a heating and cooling link to the building’s heating and cooling operation. GSHP are like any other HVAC system, they move energy from one place to another, which is no different than a traditional boiler/fluid tower heating and cooling system (McGuire, 2009). However, the GSHP uses the temperature of the earth to assist the mechanical system in a building to heat and cool a facility. Fluid circulates through a tubing system beneath the earth’s frost line, where the temperature remains between 45 and 55 degrees. The loop connects to the mechanical system inside a building. During the winter the fluid will provide the building compressor with heated solution, and during the summer it will send fluid with
cooler temperatures into the building. The “catch” is that no fuel is burned to heat or cool the loop (Sanford, 2007).

Energy efficient windows that are either installed during construction, or are used in replacement projects for renovations are critical in lowering utility bills for school districts. These energy efficient windows typically have two layers of glass that create a barrier to heat flow by conduction. The gap between the two window panes usually are filled with a gas like argon or krypton that assist in reducing heat flow. The windows are also double-glazed which help factor air leakage and heat loss (MacDonald & Provey, 2009).

School districts can further improve efficiency for their buildings using efficient lighting, sinks, faucets, and toilets. To improve lighting efficiency, many buildings have installed T-8 (F32 wattage bulbs) light bulbs, as well as automatic on/off sensors. By adding the sensors and T8 bulbs, the U.S. Department of Energy estimates a decrease of 2 million pounds of carbon dioxide greenhouse gas emissions per year (Blomenkamp, 2010). Balancing daylight will also generate significant savings through reduced HVAC loads and consumption of electricity (Gleed, 2009). Many districts are also installing battery operated automatic sensors to toilets and sinks in restrooms. The sensors manage the flushing volume of toilets while providing an automatic flow of water and regulate the amount of water consumed during hand washing (Blomenkamp, 2010). Non-polyvinyl carpeting, which is carpeting that can be recovered and reused, is being installed in schools throughout the country (Sanders, 2008).

In summary, constructing a new building is a process that is both stressful and time consuming, but, at the same time, can be very rewarding if done correctly. Many
district officials across the United States may never experience construction projects throughout their careers, while many will build or renovate buildings on a yearly basis.

A review of research suggests that many school buildings are in need of innovative, efficient renovations, while new construction has provided districts with the opportunity to proactively build buildings that improve student achievement, as well as save money over time. Over the past fifteen years, the Bellevue Public Schools have been in a unique position. The student population has grown significantly, and the boarders of the district have allowed for this growth (Fairbairn, 2010).

Unfortunately for Bellevue, there has never been a formalized process to use to determine why it is important to build a new building, when to build a building, or how to build a building. Research in these essential areas has been limited. Until specific district construction research is studied and a process is developed, a program for building and construction in the Bellevue Public Schools cannot be measured effectively. Yogi Berra said it best, “If you don’t know where you are going, you’ll end up somewhere else.”

This study can be used to develop an instrument for building and construction not only within the Bellevue Public Schools, but also, with school districts throughout the country. The information provided in this instrument may add to the skill set school officials use to successfully develop plans for building construction.
Chapter 3

Methods

Introduction

The purpose of this study was the identification of data which will be used to create a building process to be employed in future construction in the Bellevue School District. Use of a process will enable the district to become efficient, effective, and fiscally responsible when completing future construction projects. The study uses an evaluation based design. The research findings will be reported to school board members and district and building administration. This may be used as a guide for future construction and renovation projects throughout the district. District construction data was collected using Bellevue Public School’s board policies, board meeting minutes, utility bills, and previously administered questionnaires to Bellevue Elementary School teachers and staff members, district administrators, and the school architect (see Appendix A, permission to use surveys and data).

Design

Every type of research has an implicit research design. The design is the logical sequence that bridges the empirical data to the study’s research questions, and then to the study’s conclusions (Yin, 2009). The type of research design that will be focused throughout this study is program evaluation. Program evaluation was born from large scale social experimentations and government interventions. It has been used to make decisions and improvements about future programming. Specifically, Michael Patton’s Utilization Focused Evaluation (UFE) theory is a form of program evaluation that bases its premise on two assumptions:
1. The primary purpose of UFE is to make informed decisions.

2. Use of UFE is most likely to occur if the evaluator identifies one or more stakeholders who care about the program (Fitzpatrick, Sanders, & Worthen, 2011).

Patton describes the Utilization Focused Evaluation as “a process for making decisions and focusing an evaluation on intended use by intended users” (Patton, 1997, p. 20).

UFE provides a philosophy of evaluation and a practical framework for designing and conducting evaluation. It is a problem solving approach which requires the ability to adapt to change as opposed to a technical approach which attempts to set concrete and definite conditions. This study will utilize the UFE model to assess the construction process used for Bellevue Elementary School in the Bellevue School District. Using Patton’s UFE model, the evaluator will identify the best uses for this evaluation. The UFE design will be used as a guide for the evaluation process, from data collection to suggested improvements. It will assist the researcher in reorganizing elements of the existing program and developing a working process.

Further, the UFE model serves as the framework for gathering information which will be used to help create a building process to guide stakeholders in future school construction projects. It will allow decision makers to stand outside of the program and observe the current process. Research is pleasing to the scientific community, while the purpose of UFE is to please the primary intended users.

Clearly identifying the individuals who will benefit from this evaluation process is critical. Stakeholders in Bellevue (Board Members and Central Office Administration) have interest in the results of this evaluation as Board Members and Central Office
Administrators are the individuals who make judgments and decisions about Bellevue Public School building construction. Expanding a successful program inappropriately is possible when these decision makers lack information about the foundation of the program’s success. At times, decisions can be made with limited, imperfect data. The UFE will assist stakeholders in limiting uncertainties. Stakeholders will receive useful, accurate information via the interpretation of data that is understandable, believable, and valid. The researcher will be considered an internal service evaluator. Board members and staff members may have varying notions concerning what construction is supposed to look like, but through the evaluation process these important stakeholders will better understand policy, priorities, and design decisions. Utilization Focused Evaluation clarifies desired ends, celebrates accomplishments and improves the overall school construction process, while persuading stakeholders to become better oriented and reflective. In simple terms, it provides credible choices, offers creative possibilities, and determines alternatives.

As with many Utilization Focused Evaluations, this study will include both formative and summative assessments. The evaluation of the construction practices in the Bellevue Public Schools will be formative, while the process created from the evaluation will be summative. Qualitative data will be utilized through improvement oriented, descriptive school building data, as well as a survey administered to district level administration and building level staff at Bellevue Elementary School.

A detailed understanding of the current process will be used to develop a new UFE formulated process. Elements that are not effective and those that are effective will be addressed. Qualitative data will be used to describe the existing program in detail.
This descriptive data is essential to the development of the new construction process. Decisions about development will be made in small increments, based on the researcher’s data. Stakeholders will have the opportunity to use this information to increase communication, become more self-sufficient, and have a better sense of direction. As the district will employ a new superintendent in June, 2011, it is an appropriate time to develop such a process.

**Population**

The population for this study included the faculty and staff at Bellevue Elementary School and district level administrators who are directly involved with school construction including the lead architect generally contracted. The group of administrators include: Superintendent, Assistant Superintendent of Business, Director of Finance, Director of Elementary Education, Building and Grounds Facilitator, and the Bellevue Elementary School Principal.

**Instrumentation**

In order to develop a valid evaluation, measurements must be compiled (Royse, Thyer, Padgett & Logan, 2006). Data was accessed from the Bellevue Public School’s archive for building and construction. Architectural plans, utility bills, bid sheets, and construction documents were used to provide information as to the timeline for the Bellevue Elementary School construction, how the building was constructed, and the current costs to operate the school.

A researcher-designed questionnaire, including elements from the *Guide for School Facility Appraisal* (Hawkins & Lilley, 1998), along with a cover letter was administered to the faculty and staff of Bellevue Elementary School and the district level
administrators responsible for building construction, including the lead architect in the spring of 2011. The researcher was granted permission from the school to use this instrument. This questionnaire was comprised of six sections: (1) the school site, (2) structural and mechanical features, (3) plant maintainability, (4) building safety and security, (5) educational adequacy, and (6) environment for education.

In this questionnaire, information concerning faculty and staff and administrators, including the lead architect included gender, years with the district, and position.

The section on school site included information such as size, accessibility, location, landscaping, playgrounds, and suitability for instructional needs.

The section on structural and mechanical features included information such as foundations, roofs, interior and exterior walls, entrances, energy conservation, and lighting. This section also addressed such things as restrooms, fire alarms, and intercommunication systems in the building.

The section on plant maintainability provided information such as windows, doors, walls, and floor surface areas. It went on to render data about hardware, finishes, fixtures, and power outlets.

The section on building safety and security centered on such things as student loading areas, walkways and corridors, traffic areas, fire safety equipment, emergency lighting, and playground equipment.

The section on educational adequacy included information concerning areas such as learning areas, personal space, administrative offices and storage, and cafeteria and kitchen space. It also included data concerning music, physical education, technology, and library areas.
The section on educational environment for education focused on the overall
design of the building, noise, traffic flow, acoustical treatment, and furniture and
equipment.

All questions in this part of the instrument used an additive scoring method, each
section having a maximum number of allowable points. The total number of points for
each section were tabulated and indicated in the Points Assigned column of the appraisal
survey.

Included in the questionnaire completed by district level administrators and lead
architect was an additional section where respondents were asked additional open-ended
questions concerning finance, building design, administrative decision making processes,
and construction practices.

Data Collection

Data for the evaluation was collected in two ways. First, information from the
district office was gathered by the researcher in order to answer research question one.
Areas of emphasis included bid proposals, architecture drawings and designs, school
board policy, school board reports, and Bellevue Elementary and Fairview Elementary
School utility bills from the previous year. Second, the researcher used data from
questionnaires completed by Bellevue Elementary faculty and staff members and district
level administrators, including the lead architect. The questionnaires were administered
following the completion of the building to better understand appraisal of the elementary
school, as well as form an understanding of the building process. All items in each part
of the study are described. Statistics used in the analysis included percentages, means,
and ranges. Tables are used to present the data tabulated for research question two.
Research Questions

1.1 What criteria does the Bellevue Public Schools use when determining the need for additional school buildings in the Bellevue Public Schools?

1.2 What is the method for financing school buildings in the Bellevue Public Schools?

1.3 How was the construction administration determined for building Bellevue Elementary School?

1.4 Why was the particular construction administration for Bellevue Elementary School selected?

1.5 How was the building design determined for the most recent school building: Bellevue Elementary School?

1.6 Why was the particular design used for Bellevue Elementary School selected?

1.7 Is the design used for Bellevue Elementary School efficient and effective financially?

2.1 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to the school site?

2.2 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to structural and mechanical features?

2.3 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to plant maintainability

2.4 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to safety and security?
2.5 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to educational adequacy?

2.6 Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to the educational environment?

3 Was there a difference between faculty, staff, and district administration in total perceptions of Bellevue Elementary as they are related to school site, structural and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment?

**Data Analysis**

Research Question 1.1 was analyzed using information gathered from *The Guide for School Facility Appraisal* (administrator’s portion) to measure what, if any, criteria is used to determine the need for new school buildings in the Bellevue Public Schools.

Research Question 1.2 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s portion) to measure what method is used for financing school buildings for the Bellevue Public Schools. Research Question 1-b was also analyzed using information gathered from the Bellevue Public Schools’ board policy.

Research Question 1.3 was analyzed using information gathered from *The Guide for School Facility Appraisal* (administrator’s portion) to measure how construction administration was determined when building Bellevue Elementary School. Research Question 1-c was also analyzed using information gathered from the Bellevue Public Schools’ board policy.
Research Question 1.4 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s portion) to measure why this particular construction administration for Bellevue Elementary School was selected. Research Question 1-d was also analyzed by using information gathered from the Bellevue Public Schools’ board policy.

Research Question 1.5 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s portion) to measure how the building design was determined for the most recent school building: Bellevue Elementary School. Research Question 1.5 was also analyzed by using archival data gathered from Bellevue Public School’s historical records concerning Bellevue Elementary School.

Research Question 1.6 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s portion) to measure why the particular design for Bellevue Elementary School was selected. Research Question 1.6 was also analyzed by using archival data gathered from Bellevue Public School’s historical records concerning Bellevue Elementary School.

Research Question 1.7 was analyzed by using information gathered from utility (gas, electric) bills from Bellevue Elementary School and Fairview Elementary School, over the course of one fiscal year, to determine if the design used for Bellevue Elementary School was financially efficient and effective.

Research Question 2.1 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in perceptions of Bellevue Elementary School as related to the school site.
Research Question 2.2 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in perceptions of Bellevue Elementary School as related to structural and mechanical features.

Research Question 2.3 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in perceptions of Bellevue Elementary School as related to plant maintainability.

Research Question 2.4 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in perceptions of Bellevue Elementary School as related to safety and security.

Research Question 2.5 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in perceptions of Bellevue Elementary School as related to educational adequacy.

Research Question 2.6 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in perceptions of Bellevue Elementary School as related to the educational environment.
Research Question 3 was analyzed by using information gathered from *The Guide for School Facility Appraisal* (administrator’s, teacher’s and staff’s portions) to measure if certified staff members, classified staff members and district administrators differ in total perceptions of Bellevue Elementary School as related to school site, structure and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment?

**Summary**

The methodology used in this study includes survey research comprised of a series of questions concerning the design, funding, usability, and safety of Bellevue Elementary School. From this data, the evaluator has created a construction process that may be used for future building projects. The methodology is based on principles included in Michael Patton’s Utilization Focused Evaluation Theory. Archival data will be collected in order to gain an understanding of the construction and operation of Bellevue Elementary School. Analysis of portions of Bellevue Public School board policy and data from questionnaires administered to district level administrators including the lead architect and faculty and staff members at Bellevue Elementary are used. The data was analyzed using percentiles, means, ranges, and number of respondents. The findings are available to Bellevue Public School stakeholders as well as board members and administrators from surrounding school districts who request such information.
Chapter 4
Results

Prior to reporting each of the three research questions in this study, an explanation of how data was calculated is necessary. All data for the study was approved to be used by the acting superintendent of the Bellevue Public Schools. All data collected was gathered from Bellevue Public School’s archives. Utility bills from Bellevue Elementary School and Fairview Elementary School were used to answer questions concerning each building. Survey data, board policy manuals, and school board meeting minutes from the business department were used to help answer other questions concerning district policy and construction practices in the Bellevue Public School District.

Research question 1.1 was analyzed using descriptive data from The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion), to determine need for additional school buildings in the Bellevue Public Schools (see Appendix C).

Research question 1.2 was analyzed using descriptive data from The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion), as well as data from Bellevue Public School’s board policies to determine the method for financing the construction of school buildings at Bellevue Public Schools (see Appendix C).

Research question 1.3 was analyzed using descriptive data from The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion) (see Appendix C), as well as descriptive data from Bellevue
Public School’s board policies to determine how construction administration was determined when building Bellevue Elementary School.

Research question 1.4 was analyzed using descriptive data from The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion) (see Appendix C), as well as descriptive data from Bellevue Public School’s board policies to determine why this particular construction administration was determined when building Bellevue Elementary School.

Research question 1.5 was analyzed using descriptive data from The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion), (see Appendix C), as well as descriptive data from Bellevue Public School’s archives to determine how the building design was determined for Bellevue Elementary School.

Research question 1.6 was analyzed using descriptive data from The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion), (see Appendix C), as well as descriptive data from Bellevue Public School’s board policies to determine why this particular design was used when constructing Bellevue Elementary School.

Research question 1.7 was analyzed using utility bills from Bellevue Public School’s archives to determine if the design used for Bellevue Elementary School was efficient and effective financially.

Research question 2.1 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference
between faculty, staff and district administration perceptions of Bellevue Elementary as related to the school site.

Research question 2.2 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference between faculty, staff and district administration perceptions of Bellevue Elementary as related to the structure and mechanical features.

Research question 2.3 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference between faculty, staff and district administration perceptions of Bellevue Elementary as related to plant maintainability.

Research question 2.4 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference between faculty, staff and district administration perceptions of Bellevue Elementary as related to safety and security.

Research question 2.5 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference between faculty, staff and district administration perceptions of Bellevue Elementary as related to educational adequacy.
Research question 2.6 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference between faculty, staff and district administration perceptions of Bellevue Elementary as related to the educational environment.

Research question 3 was analyzed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal* (administrator’s portion & faculty and staff’s portion) (see Appendix C & D), to determine if there was a difference between faculty, staff and district administration total perceptions of Bellevue Elementary as related to school site, structure and mechanical features, plant maintainability, safety and security, educational adequacy and educational environment.

**Research Questions**

A program evaluation of building construction of Bellevue Elementary School for the Bellevue Public Schools were completed using The Council of Education Facility Planners International’s *Guide for School Facility Appraisal*, and Bellevue Public School’s archival data and board policy. Section one of chapter four will address parts of each research question posed in this study.

Research question 1 examines the process of new building construction from need and planning to design and construction using district policies and procedures.

**Research Question 1.1**

*What criteria does the Bellevue Public Schools use when determining the need for additional school buildings in the Bellevue Public Schools?*
When determining the need for an additional school to be built in Bellevue, the superintendent of schools, the finance director, and the assistant superintendent of business proactively study community growth, reduction in class size, programs changes and property development in Bellevue. From these reports, the district administration team will consult with the school board to determine if a new school is necessary to meet the needs of the students of the district. Once the superintendent has determined a need for a new school building and been given permission by the school board to pursue a location, he meets with subdivision developers to set aside available property in the neighborhood of choice. In the survey, the Bellevue Public Schools’ superintendent stated “a new Bellevue Public School building site is chosen due to area location and a cooperative work with developers.”

The Bellevue Public School Board Policy 903.04 states

The Superintendent, or delegated representative, shall be responsible for maintenance and improvement of the school plant and reporting recommendations for all major alterations, improvements or expansions to the Board of Education. Upon authorization by the Board of Education, such alterations or improvements shall be completed.

Furthermore, Bellevue Public School Board Policy 902.07 states

The Board of Education directs the Superintendent of School to develop appropriate plans for needed renovation, repair, modernization, construction and/or modification of district owned grounds and facilities. Architects, engineers, consultants, and other specialists as needed by the nature of the project or as required by state law shall be involved. The construction process may
include any one or a combination of the following: hiring a general contractor who would be responsible for the project including subcontractors; district personnel acting as their own general contractor and using subcontractors as needed; using district personnel qualified to complete project, or other appropriate construction processes.

In October of 2007, the Bellevue Public Schools’ superintendent reported to the school board addressing three possible sites for a new elementary school. At that time he provided the board of education a report on growth patterns in the District and an analysis of the possible school sites (Bellevue Public School Board Meeting, October, 2007, p. 1).

**Research Question 1.2**

*What is the method for financing school buildings in the Bellevue Public Schools?*

When financing a new school construction project, the Bellevue Public Schools sets aside money annually in the Building and Site Fund. According to Bellevue Public School’s finance director, the district saves money annually through funding sources. Money received from the federal government through the Impact Aid program is used to consistently finance school construction projects. Many schools districts are capable of passing bond issues to pay for construction projects. The Bellevue Public Schools have difficulty passing bond issues via a vote as 35% of the city’s population live on federal land, and are not able to vote in a bond election. Because of this problem, Impact Aid money is the primary source of income to fund construction projects such as Bellevue Elementary School (Fairbairn, personal communication, November, 2010).
Research Question 1.3

*How was the construction administration determined for building Bellevue Elementary School?*

The construction administration is determined in Bellevue by following School Board Policy. Code 902.07 of the Bellevue Public School Board Policy states:

….Architects, engineers, consultants, and other specialists as needed by the nature of the project or as required by state law shall be involved. The construction process may include any one or a combination of the following: hiring a general contractor who would be responsible for the project including subcontractors; district personnel acting as their own general contractor and using subcontractors as needed; using district personnel qualified to complete project, or other appropriate construction processes.

The Bellevue Public School Operational Procedures 902.021 state:

For approved budgeted projects (or items being planned for future budgeting) which require architectural services and when developing educational specifications, the administrator responsible for the project shall consult with the Assistant Superintendent for Business regarding the need for such services. If the Assistant Superintendent for Business determines the services are necessary, he is responsible for the selection of the architect and will work with the administrator involved to secure the services necessary.

The selection criteria the Assistant Superintendent of Business must follow include:

1. Review of architectural firms that have had direct experience with our school district and firms that have had satisfactory experience in our community;
2. Evaluation of the professional qualifications of the firm and its employees;
3. Examination of the architectural firm’s organization, project style, approach and results;
4. Review of costs of doing business with each firm and billing procedures;
5. Consideration of any special talents and abilities displayed or proven relative to the specific requirements of this project;
6. Overall ability of architectural firm to meet the needs of the Bellevue Public School District;
7. Agreement of the firm to work under our modified architect/owner contract;
8. Review of the firm’s references;
9. Review of any design awards; and
10. Review procedures for cost containment, communication, bidding, billing and change orders.

From the Assistant Superintendent for Business’ recommendations, the Superintendent of Schools will then have the opportunity to select an architect and/or engineer for the construction project. The selection will be approved by the Bellevue Board of Education.

Once a construction administrative team is approved, the firm must comply with Bellevue Public School Board Policy 902.02 which states,

The District shall bid, by definition, a complete project for construction, remodeling, and/or repair of any school-owned building or for site improvements when the completed expenditures for such projects are forty thousand dollars or more. The engineer, architect or employee of the District shall keep and maintain
a record of method of advertising for bids on a record of the contractors or potential bidders who have been solicited to bid on any such project and the response to the solicitation or advertisement.

**Research Question 1.4**

*Why was the particular construction administration for Bellevue Elementary School selected?*

In the November, 2007 School Board meeting the Superintendent of Schools recommended “to authorize Hill Farrell & Associates to prepare plans and specifications for a new three-unit elementary school to be located in Lakewood Villages, and to be constructed and open in August, 2009, contingent upon adequate funding to lower class size under LB 641” (Bellevue Public Schools Board Meeting, November, 2007, p.1).

In the April, 2008 School Board meeting there was a recommended action: “to authorize Hill-Farrell & Associates to bid a new three-unit elementary school and provide recommendations to the Board at the May, 2008, Board meeting.” An architect with Hill-Farrell & Associates provided a report regarding the process and plans (Appendix D) (Bellevue Public Schools Board Meeting, April, 2008, p.2).

In the May, 2008 School Board meeting, the Assistant Superintendent for Business recommended to the Board of Education to approve a set of companies and their respective amounts to construct Bellevue Elementary School. One hundred sets of bid specifications and plans were sent to contractors the week of April 14, 2008. The bids were opened May 7, 2008. Hill Ferrell’s lead architect then provided the board with an update on the bid process, a bid summary, and his recommendations for approval (Bellevue Public School Board Meeting, May, 2008, p.4).
According to Hill Farrell’s lead architect, contracted to design and supervise the building of Bellevue Elementary School, and Bellevue Public Schools’ Superintendent a contractor with the lowest submitted bid was selected through a design/bid/build process. The project architect and the associated engineers were then directly involved with the general contractor throughout the construction of Bellevue Elementary School.

**Research Question 1.5**

*How was the building design determined for the most recent school building: Bellevue Elementary School?*

The building design for Bellevue Elementary School was a two part process. First the initial design was determined though research, discussion and previous construction experience. The Superintendent of Schools, Assistant Superintendent of Business, Finance Director, Director of Elementary Education and Lead Architect gathered information from two previous school buildings the district built during the past 15 years. Using this information, this construction team was able to design a three-unit elementary school that would accommodate the needs of the district. Once this design was determined, Hill Farrell & Associates were able to put the project out for bid. The project was awarded in May, 2008 (Fairbairn, personal communication, November, 2010).

**Research Question 1.6**

*Why was the particular design used for Bellevue Elementary School selected?*

In June, 2008, the District Administrative team felt it would be beneficial to the design of Bellevue Elementary School to supplant the building’s initial Heating, Ventilation & Air-Conditioning (HVAC) with a Geo-Thermal System. In the June, 2008 School Board Meeting, the Assistant Superintendent proposed a recommended action to
approve the bid for a Geo-Thermal System (Bellevue Public School Board Meeting, June, 2008, p. 2). According to Bellevue Public Schools’ Director of Finance, a Geo-Thermal System would be an “up-front” cost that would cost considerably more than a traditional HVAC system which was in the original bid. However, a Geo-Thermal System would provide an overall long-term cost savings (Fairbairn, personal communication, November, 2010).

**Research Question 1.7**

Is the design used for Bellevue Elementary School efficient and effective financially?

The design used for Bellevue Elementary School was both efficient and effective financially. Utility bills comparing Bellevue Elementary School (62,000 square ft), which has a Geo-Thermal HVAC design and Fairview Elementary School (62,000 square ft) which has a traditional boiler/chiller HVAC design (see Table 1) show that over the course of one fiscal school year there is a difference in price to operate each building.

Research Question 2 analyzed administrator, teacher, and certified staff perceptions on each of the domains measured on the Guide for School Facility Appraisal survey. The domains include school site, structural and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment.

**Research Question 2.1**

Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to the school site?

Did faculty, staff, and district administration have congruent or different total perception scores on the *Guide for School Facility Appraisal* survey which measured the
overall rating for their perceptions of the school site? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.

There was no significant difference between total perception scores on the Guide for School Facility Appraisal survey which measured the overall rating for their perceptions of the school site. As seen in Table 3, Analysis of Variance (ANOVA) indicated no significant main effect for total perception score $F(2,37) = 2.20, p = .13$. Means and standard deviations are listed in Table 3.

**Research Question 2.2**

*Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to structural and mechanical features?*

Did faculty, staff, and district administration have congruent or different perception scores on the Guide for School Facility Appraisal survey which measured the overall rating for their perceptions of the structural and mechanical features? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.

As seen in Table 4 Analysis of Variance (ANOVA) indicated a significant main effect for total perception score $F(2,37) = 10.58, p < .05$. Post hoc follow-up analyses indicated that the mean scores for administrators ($M = 0.99, SD = 0.01$) were significantly higher than the scores for certified staff ($M = 0.79, SD = 0.11$), and the mean scores for administrators ($M = 0.99, SD = 0.01$) were significantly higher than the scores for classified staff ($M = 0.84, SD = 0.11$). There was no significant difference between certified staff and classified staff. Means and standard deviations are listed in Table 4.
Research Question 2.3

*Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to plant maintainability?*

Did faculty, staff, and district administration have congruent or different total perception scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for their perceptions of the plant maintainability? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.

There was no significant difference between total perception scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for their perceptions of the plant maintainability. As seen in Table 5 Analysis of Variance (ANOVA) indicated no significant main effect for total perception score $F(2,36) = 3.04$, $p = .06$. Means and standard deviations are listed in Table 5.

Research Question 2.4

*Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to safety and security?*

Did faculty, staff, and district administration have congruent or different total perception scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for their perceptions of safety and security? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.

As seen in Table 6 Analysis of Variance (ANOVA) indicated a significant main effect for total perception score $F(2,37) = 3.42$, $p = .04$. Post hoc follow-up analyses
indicated that the mean scores for administrators ($M = 0.99, \ SD = 0.02$) were significantly higher than the scores for certified staff ($M = 0.87, \ SD = 0.13$). There was no significant difference between administrative staff and classified staff and no significant difference between certified staff and classified staff. Means and standard deviations are listed in Table 6.

**Research Question 2.5**

*Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to educational adequacy?*

Did faculty, staff, and district administration have congruent or different total perception scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for their perceptions of educational adequacy? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.

As seen in Table 7, Analysis of Variance (ANOVA) indicated a significant main effect for total perception score $F(2,36) = 3.19, \ p = .05$. Post hoc follow-up analyses indicated that the mean scores for administrators ($M = 0.96, \ SD = 0.06$) were significantly higher than the scores for certified staff ($M = 0.84, \ SD = 0.11$). There was no significant difference between administrative staff and classified staff and no significant difference between certified staff and classified staff. Means and standard deviations are listed in Table 7.

**Research Question 2.6**

*Do administrators, certified and classified staff members differ in perceptions of Bellevue Elementary School as related to educational environment?*
Did faculty, staff, and district administration have congruent or different total perception scores on the Guide for School Facility Appraisal survey which measured the overall rating for their perceptions of the educational environment? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.

As seen in Table 8 Analysis of Variance (ANOVA) indicated no significant main effect for total perception score $F(2,36) = 2.95, p = .07$. Means and standard deviations are listed in Table 8.

Research question three examines faculty, staff and district administrator, perceptions overall differences of scores on the Guide for School Facility Appraisal survey.

**Research Question 3**

*Was there a difference between faculty, staff, and district administration in total perceptions of Bellevue Elementary as they are related to school site, structural and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment?*

Did faculty, staff, and district administration have congruent or different total perception scores on the Guide for School Facility Appraisal survey which measured the overall rating for their perceptions of the school site, structural and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment? Analysis of Variance (ANOVA) was used to determine the main effect variance between the three comparison groups.
As seen in Table 9 Analysis of Variance (ANOVA) indicated a significant main effect for total perception score $F(2,37) = 5.60, p = .01$. Post hoc follow-up analyses indicated that the mean scores for administrators ($M = 0.97, SD = 0.03$) were significantly higher than the scores for certified staff ($M = 0.89, SD = 0.06$). There was no significant difference between administrative staff and classified staff and no significant difference between certified staff and classified staff. Means and standard deviations are listed in Table 9.
Table 1

Utility Bills

<table>
<thead>
<tr>
<th>Date</th>
<th>Bellevue Elementary OPPD</th>
<th>Bellevue Elementary MUD</th>
<th>Total</th>
<th>Fairview OPPD</th>
<th>Fairview MUD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>October-10</td>
<td>$6,502.00</td>
<td>$106.00</td>
<td>$6,608.00</td>
<td>$7,914.00</td>
<td>$291.00</td>
<td>$8,205.00</td>
</tr>
<tr>
<td>September-10</td>
<td>$6,613.00</td>
<td>$91.00</td>
<td>$6,704.00</td>
<td>$6,522.00</td>
<td>$96.00</td>
<td>$6,618.00</td>
</tr>
<tr>
<td>August-10</td>
<td>$5,216.00</td>
<td>$87.00</td>
<td>$5,303.00</td>
<td>$6,610.00</td>
<td>$253.00</td>
<td>$6,863.00</td>
</tr>
<tr>
<td>July-10</td>
<td>$5,212.00</td>
<td>$95.00</td>
<td>$5,307.00</td>
<td>$4,608.00</td>
<td>$420.00</td>
<td>$5,028.00</td>
</tr>
<tr>
<td>June-10</td>
<td>$4,676.00</td>
<td>$104.00</td>
<td>$4,780.00</td>
<td>$3,685.00</td>
<td>$740.00</td>
<td>$4,425.00</td>
</tr>
<tr>
<td>May-10</td>
<td>$4,747.00</td>
<td>$124.00</td>
<td>$4,871.00</td>
<td>$4,857.00</td>
<td>$1,417.00</td>
<td>$6,274.00</td>
</tr>
<tr>
<td>April-10</td>
<td>$4,868.00</td>
<td>$138.00</td>
<td>$5,006.00</td>
<td>$3,857.00</td>
<td>$2,678.00</td>
<td>$6,535.00</td>
</tr>
<tr>
<td>March-10</td>
<td>$5,537.00</td>
<td>$133.00</td>
<td>$5,670.00</td>
<td>$3,633.00</td>
<td>$3,958.00</td>
<td>$7,591.00</td>
</tr>
<tr>
<td>February-10</td>
<td>$5,675.00</td>
<td>$125.00</td>
<td>$5,800.00</td>
<td>$3,197.00</td>
<td>$2,556.00</td>
<td>$5,753.00</td>
</tr>
<tr>
<td>January-10</td>
<td>$4,812.00</td>
<td>$137.00</td>
<td>$4,949.00</td>
<td>$3,768.00</td>
<td>$1,015.00</td>
<td>$4,783.00</td>
</tr>
<tr>
<td>December-09</td>
<td>$4,520.00</td>
<td>$104.00</td>
<td>$4,624.00</td>
<td>$3,875.00</td>
<td>$999.00</td>
<td>$4,874.00</td>
</tr>
<tr>
<td>November-09</td>
<td>$4,607.00</td>
<td>$83.00</td>
<td>$4,690.00</td>
<td>$6,035.00</td>
<td>$391.00</td>
<td>$6,426.00</td>
</tr>
<tr>
<td>Total</td>
<td>$62,985.00</td>
<td>$1,327.00</td>
<td>$64,312.00</td>
<td>$58,561.00</td>
<td>$14,814.00</td>
<td>$73,375.00</td>
</tr>
</tbody>
</table>

BE Sq Ft 62000

FV Sq Ft 61620
Table 2

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>$N$</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classified Staff</td>
<td>12</td>
<td>0.92</td>
<td>0.09</td>
</tr>
<tr>
<td>Certified Staff</td>
<td>21</td>
<td>0.87</td>
<td>0.13</td>
</tr>
<tr>
<td>Administrative Staff</td>
<td>7</td>
<td>0.99</td>
<td>0.02</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>0.90</td>
<td>0.11</td>
</tr>
</tbody>
</table>
Table 3

Scores on the *Guide for School Facility Appraisal* survey which measured the overall 
rating for perceptions of the school site

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>$ss$</th>
<th>$df$</th>
<th>$MS$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.03</td>
<td>2</td>
<td>0.02</td>
<td>2.20</td>
<td>.13*</td>
</tr>
<tr>
<td>Within</td>
<td>0.26</td>
<td>37</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.29</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* not significant
Table 4

Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the structural and mechanical features

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.22</td>
<td>2</td>
<td>0.11</td>
<td>10.58</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Within</td>
<td>0.39</td>
<td>37</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.61</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5

Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the plant maintainability

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.05</td>
<td>2</td>
<td>0.03</td>
<td>3.04</td>
<td>.06*</td>
</tr>
<tr>
<td>Within</td>
<td>0.31</td>
<td>36</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.37</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* not significant
Table 6

Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the school safety and security

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.08</td>
<td>2</td>
<td>0.04</td>
<td>3.42</td>
<td>.04</td>
</tr>
<tr>
<td>Within</td>
<td>0.41</td>
<td>37</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.49</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7

Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the educational adequacy

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>$ss$</th>
<th>$df$</th>
<th>$MS$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.06</td>
<td>2</td>
<td>0.03</td>
<td>3.19</td>
<td>.05*</td>
</tr>
<tr>
<td>Within</td>
<td>0.36</td>
<td>36</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.42</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* not significant
Table 8

Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the educational environment

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>$ss$</th>
<th>$df$</th>
<th>$MS$</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.06</td>
<td>2</td>
<td>0.03</td>
<td>2.95</td>
<td>.07*</td>
</tr>
<tr>
<td>Within</td>
<td>0.37</td>
<td>36</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.43</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* not significant
Table 9

Scores on the *Guide for School Facility Appraisal* survey which measured the overall rating for perceptions of the school site, structure and mechanical features, plant maintainability, safety and security, educational adequacy, and educational environment

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.04</td>
<td>2</td>
<td>0.02</td>
<td>5.60</td>
<td>.01</td>
</tr>
<tr>
<td>Within</td>
<td>0.12</td>
<td>37</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.15</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 5
Conclusions and Building Process

Conclusions

It seems clear from the planning and procedures as well as from the survey data gathered for this research, that facilities construction and management are important to the Bellevue Public Schools. Students, parents, teachers, and the community in general can benefit from high quality facilities. Roberts, Edgerton, and Peter (2008) agree that there is strong evidence that the conditions of school facilities can have a significant impact on student achievement. It is especially important to keep in mind the purpose of the school building when measuring its ability to serve the need of the community.

Even though the perceptions of teachers, staff, and administrators frequently differ in their perceptions of characteristics identified in this program evaluation, there is evidence that the entire staff overall is pleased with the new building identified in this project. The completion of this study provides the district and school with many significant findings.

- The Bellevue Public Schools effectively determines need for additional school buildings in the district.

- The Bellevue Public Schools generally use Impact Aid and school board approved monies from the district building and site budget to fund building construction.

- Generally for the past 15 years the Bellevue Public Schools have used a combination of design build and construction manager approaches to construction administration.
• For the building design of Bellevue Elementary School the district selected various green construction approaches including: geothermal HVAC system, energy efficient windows, faucet, toilet and light sensors, low energy light ballasts, skylights, and bioretention cells.

• Utility bills have determined that the school district was able to save $9,063 over the course of one fiscal year due to a geothermal HVAC system. At an up-front construction cost of $225,000 more to include a geothermal HVAC system, the district will recover costs in approximately 25 years.

• The life span of Bellevue Elementary School is approximately 50 years (personal communication, Ralph Gladbach, March 30th, 2010).

• Green measures were selected in order to recover energy costs over a period of time, and also to be effective environmental stewards.

• During its first year of operation, the utility costs for Bellevue Elementary School were considerably lower than a traditional elementary building in the district of equal square footage.

• Perceptions of district administrators and certified and classified staff members of Bellevue Elementary School were not significantly different in the following four domains: school site, plant maintainability, educational adequacy, and educational environment. Where was the difference?
• Perceptions of district administrators and certified and classified staff members of Bellevue Elementary School were significantly different in the following two domains: structural and mechanical features and safety and security.

• Total perceptions of district administrators and certified and classified staff members of Bellevue Elementary School were significantly different.

• Due to the significant differences between perceptions of district administrators and certified and classified staff members of Bellevue Elementary School in two of the domains (structural and mechanical features and safety and security), and in total perceptions, the school board and the administrative team must collaborate more effectively with certified and classified staff members during the design phase of school building construction.

Determine Need

1. The school district’s administrative team studies community growth, reduction in class size, program changes and property development in the district.

2. The administrative team consults with the school board to determine if a new school is necessary to meet the needs of the students of the district.

3. Following school board approval, the team meets with developers to set aside available property, in the neighborhood of choice.

Method for Finance

1. Finances may be appropriated through Impact Aid (for qualifying districts), a district bond campaign, approved monies from the district building and site fund
in the annual budget, available government monies such as current stimulus package funds, or private donations, via the school’s foundation.

2. School board and the administrative team will determine what method of finance they will pursue, which may include a combination of the above mentioned sources.

Construction Administration Selection

1. The school board and administrative determine the type of construction administration to be used.

2. The three most effective methods include design bid build, design build, and construction management. Design bid build projects are usually used when constructing smaller, prototypical buildings. Recently the design build method has become more popular with public institutions as it utilizes one continuous process. A significant benefit of the construction management process is that commonly the architect and construction manager have worked together in the past.

3. Once the method has been selected the school board and administrative team will use the following selection criteria to determine the contractor(s).

   - Review of architectural firms that have had direct experience with our school district and firms that have had satisfactory experience in our community;
   - Evaluation of the professional qualifications of the firm and its employees;
   - Examination of the architectural firm’s organization, project style, approach and results;
• Review of costs of doing business with each firm and billing procedures;
• Consideration of any special talents and abilities displayed or proven relative to
  the specific requirements of this project;
• Overall ability of architectural firm to meet the needs of the Bellevue Public
  School District;
• Agreement of the firm to work under our modified architect/owner contract ;
• Review of the firm’s references;
• Review of any design awards; and
• Review procedures for cost containment, communication, bidding, billing and
  change orders.

School Building Design

1. Based on research, building green has been shown to be more cost efficient and
  environment friendly throughout the life of the building. One example includes
  using a geothermal system for HVAC.

2. When designing a building the following six domains must be addressed: school
  site, structural and mechanical features, plant maintainability, school building
  safety and security, educational adequacy, and educational environment.

3. When considering these six domains in the construction of a building, it is
  recommended the school board and administrative team consistently work in
  collaboration with certified and classified staff members, with special focus on the
  structural and mechanical features and safety and security elements of the
proposed new building in order to develop the most appropriate and effective learning facility.

Discussion

There is little debate that facilities in the United States are in need of improvement. The call for new construction and renovation of school facilities has come from many voices, ranging from professional education associations, community groups, and political bodies (Roberts, 2009). Even though it is a common held belief that the majority of school funding should focus on curriculum and instruction, currently less than 10 percent is being spent on facilities. And ignoring the building as an integral part of the educational endeavor puts the other investments at risk (Roberts, 2009).

The results of this evaluation illustrate that when a district is forward thinking, committed to students and community from a number of perspectives, and has proper practices and procedures in place, facility needs can continue to be met. Facility planning is not separate from, but a means to reinforce the district’s established goals of teaching and learning (Uline & Tschannen-Moran, 2008).
References

Belleuve Public Schools (2007). *Belleuve public school board meeting minutes*, Bellevue, NE: Bellevue Public Schools.


Luepke, G. (2007). America’s schools are going green. *Heating, Piping, Air Conditioning*


Nebraska Education Laws, Neb. § Ann. 73.106. (2009).


Bellevue Public Schools  
1600 Highway 370  
Bellevue, NE 68005

Date: January 25, 2011  
To: Matt Blomenkamp  
From: Jeff Rippe  
Subject: Dissertation

As acting superintendent of Bellevue Public Schools, I give Matt Blomenkamp permission to use Bellevue Public School's name when writing his dissertation. At the same time, I give him permission to use any information from Bellevue Public School's board policies, archival data and board meetings that might assist him in his dissertation project.

Sincerely,

Jeff Rippe  
Acting Superintendent  
Bellevue Public Schools
Appendix B
Appendix C

Bellevue Public Schools Administrative Survey in regard
To Bellevue Elementary

Date__________________

Years with the District________________

Gender (circle one)  Male  Female

Position________________

Please take time to answer each of the following questions regarding Bellevue Elementary School. The number next to each question represents the maximum amount of points you can award as your answer. The higher the number, the stronger you feel about the question. For example: If I were to answer question 1.1: Site is large enough to meet the educational needs of the students. The maximum number of points I could award as an answer is 25. If I awarded 25, I would be indicating that I feel there is plenty of space to meet educational needs. If I awarded 15 pts, I would be indicating I felt there was an average amount of space. If I awarded zero pts, I would be indicating I felt that there was not enough space to meet educational need for the students at Bellevue Elementary. If you do not know how to answer a question, or do not feel comfortable answering a question, please leave the space provided blank.

1.0 The School Site

1.1 Site is the site large enough to meet the educational needs as defined by state and 25 local requirements.

1.2 Site is easily accessible and conveniently located for the present and 20 future population.

1.3 Site location is removed from undesirable business, industry, traffic, and natural 10 hazards.

1.4 Site is well landscaped and developed to meet educational needs. 10

1.5 Well equipped playgrounds are separated from streets and parking areas. 10

1.6 Grounds are varied enough to provide desirable appearance without steep 5 inclines

1.7 Site has stable, well drained soil free erosion. 5

1.8 Site is suitable for special instructional needs, e.g. outdoor learning. 5

1.9 Pedestrian services include adequate sidewalks with designated cross-walks, 5 curb cuts, and correct slopes.
1.10 Sufficient on-site, solid surface parking is provided for faculty, staff and community.

TOTAL – THE SCHOOL SITE

2.0 Structural and Mechanical Features

2.1 Structure meets all barrier-free requirements both externally and internally. 15

2.2 Roofs appear sound, have positive drainage, and are weather tight. 15

2.3 Foundations are strong and stable with no observable cracks. 10

2.4 Exterior and interior walls have sufficient expansion joints and are free of deterioration. 10

2.5 Entrances and exits are located so as to permit efficient student traffic flow. 10

2.6 Building provides for energy conservation. 10

2.7 Structure is free of friable asbestos and toxic materials. 10

2.8 Interior walls permit sufficient flexibility for a variety of class sizes. 10

2.9 Adequate light sources are well maintained, properly placed and are not subject to overheating. 15

2.10 Internal water supply is adequate with sufficient pressure to meet health and safety requirements. 15

2.11 Each learning area has adequate, convenient wall outlets, phone and computer cabling jacks. 15

2.12 Electrical outlets are safely protected with disconnect switches easily accessible. 10

2.13 Drinking fountains are adequate in number and placement, and are properly maintained, including provisions for disabled. 10

2.14 Number and size of restrooms meet requirements 10

2.15 Drainage systems are properly maintained and meet requirements. 10

2.16 Fire alarms, smoke detectors, and sprinkler systems are properly maintained and meet requirements. 10

2.17 Intercommunication system consists of a central unit that allows dependable, two-way communication between office and instructional areas. 10
2.18 Exterior water supply is sufficient and available for normal usage. 5 ______

TOTAL – STRUCTURAL AND MECHANICAL FEATURES 200 ______

3.0 Plant Maintainability

3.1 Exterior windows, doors, and walls are of material and finish requiring minimum maintenance. 15 ______

3.2 Floor surfaces throughout the building require minimum care. 15 ______

3.3 Ceilings and walls throughout the building, including service areas, are easily cleaned and resistant to stain. 10 ______

3.4 Built-In equipment is designed and constructed for ease of maintenance. 10 ______

3.5 Finishes and hardware, with compatible keying system, are of durable quality. 10 ______

3.6 Restroom fixtures are wall mounted and of quality finish. 10 ______

3.7 Custodial closets with water and a drain are accessible throughout the building. 10 ______

3.8 Adequate electrical outlets and power are available. 10 ______

3.9 Outdoor light fixtures, electrical outlets, equipment and other fixtures are accessible. 10 ______

TOTAL – PLANT MAINTAINABILITY 100 ______

4.0 Building Safety and Security

4.1 Student loading areas are segregated from other vehicular traffic and walkways. 15 ______

4.2 Walkways are available for safety of pedestrians. 10 ______

4.3 Access streets have sufficient signals and signs to permit safe entrance and exit. 5 ______

4.4 Vehicular entrances and exits permit safe traffic flow. 5 ______

4.5 Playground equipment is free from hazard. 5 ______
4.6 The heating unit is located away from student occupied areas. 20
4.7 Exterior doors open outward and are equipped with panic hardware. 10
4.8 Emergency lighting is provided throughout the building with exit signs on separate circuits. 10
4.9 Classroom doors are recessed and open outward. 10
4.10 Flooring is maintained in a nonslip condition. 5
4.11 Glass is properly located and protected with wire or safety material to prevent student injury. 5
4.12 Fixtures in high traffic areas do not extend more than eight inches from the corridor wall. 5
4.13 Traffic areas end at an exit and lead to an egress. 5
4.14 Adequate fire safety equipment is properly located. 15
4.15 There are at least two independent exits from any point in the building. 15
4.16 Fire resistant materials are used throughout the structure. 15
4.17 Automatic and manual emergency alarm systems with distinctive sound and flashing lights are provided. 15

TOTAL – BUILDING SAFETY AND SECURITY 170

5.0 Educational Adequacy
5.1 Size of academic learning areas meets desirable standards. 25
5.2 Classroom space permits arrangements for small group activity. 15
5.3 Location of academic learning areas is near related educational activities and away from disruptive noises. 10
5.4 Personal space in classroom away from group instruction allows privacy time for individual students. 10
5.5 Student storage is adequate. 10
5.6 Teacher storage is adequate. 10
5.7 Size of specialized learning area(s) meets standards. 15
5.8 Design of specialized learning area(s) is compatible and attractive space. 10
5.9 Library/Resource/Media Center provides appropriate and attractive space. 10
5.10 Gymnasium adequately serves physical education instruction. 5
5.11 Pre-Kindergarten and kindergarten space is appropriate for age of students and nature of instruction. 10
5.12 Music program is provided adequate sound-treated space. 5
5.13 Space for art is appropriate for instruction, supplies and equipment. 5
5.14 Space for technology education permits use of state-of-the-art equipment. 5
5.15 Space for small groups and remedial instruction is provided adjacent to classrooms. 5
5.16 Teachers’ lounge and work areas support teachers. 10
5.17 Cafeteria/Kitchen is attractive with sufficient space for seating/dining, delivery, storage, and food preparation. 10
5.18 Administrative offices are consistent in appearance and function with the maturity of the students served. 5
5.19 Clinic is near administrative offices and is equipped to meet requirements. 5
5.20 Suitable reception space is available for students, teacher and visitors. 5

**TOTAL – EDUCATIONAL ADEQUACY**

185

---

**6.0 Environment for Education**

6.1 Overall design is aesthetically pleasing and appropriate for the age of students. 15
6.2 Site and building are well landscaped. 10
6.3 Exterior noise and surrounding environment do not disrupt learning. 10
6.4 Entrances and walkways are sheltered from sun and inclement weather. 10
6.5 Building materials provide attractive color and texture. 5
6.6 Color schemes, building materials, and décor provide an impetus to learning. 20
6.7 Year round comfortable temperature and humidity controls are provided throughout the building. 15
6.8 Ventilating system provides adequate quiet circulation of clean air and meets 15cfm
6.9 Lighting system provides proper intensity, diffusion, and distribution of illumination.
6.10 Sufficient drinking fountains and restroom facilities are conveniently located.
6.11 Communication among students is enhanced by common areas.
6.12 Traffic flow is aided by appropriate foyers and corridors.
6.13 Areas for students to interact are suitable to the age group.
6.14 Large group areas are designed for effective management of students.
6.15 Acoustical treatment of ceilings, walls, and floors provide effective sound control.
6.16 Window design contributes to a pleasant environment.
6.17 Furniture and equipment provide a pleasing atmosphere.

TOTAL – ENVIRONMENT FOR EDUCATION

1. How was the current school site chosen when initially deciding to build a new elementary school?

2. How was Bellevue Elementary School financed?

3. How was the design of the building decided (physical appearance and geothermal design)?

4. Who made the decision as to how the building was going to be designed?

5. How was the construction administration decided when building Bellevue Elementary?
Appendix D

Bellevue Elementary School Appraisal Survey

Date__________________

Years with the District_______

Gender (circle one) Male Female

Position (circle one) Certified Classified

Please take time to answer each of the following questions regarding Bellevue Elementary School. The number next to each question represents the maximum amount of points you can award as your answer. The higher the number, the stronger you feel about the question. For example: If you were to answer question 1.1: Site is large enough to meet the educational needs of the students. The maximum number of points you could award as an answer is 25. If you awarded 25, you would be indicating that you feel there is plenty of space to meet educational needs. If you awarded 15 pts, you would be indicating you felt there was an average amount of space. If you awarded zero pts, you would be indicating you felt that there was not enough space to meet educational need for the students at Bellevue Elementary. If you do not know how, or do not feel comfortable answering a question, please leave the space provided blank.

1.0 The School Site

1.1 Site is large enough to meet the educational needs of the students. 25 ______

1.2 Site is easily accessible and conveniently located for the present and future population. 20 ______

1.3 Site location is removed from undesirable business, industry, traffic, and natural hazards 10 ______

1.4 Site is well landscaped and developed to meet educational needs. 10 ______

1.5 Well equipped playgrounds are separated from streets and parking areas. 10 ______

1.6 Grounds are varied enough to provide desirable appearance without steep inclines. 5 ______

1.7 Site is suitable for special instructional needs, e.g. outdoor learning. 5 ______

1.8 Pedestrian services include adequate sidewalks and cross-walks. 5 ______
1.9  Sufficient on-site, solid surface parking is provided for faculty, staff and community.  5

TOTAL – THE SCHOOL SITE  85

2.0  Structural and Mechanical Features

2.1  Roofs are sound, have proper drainage and are weather tight.  15

2.2  Exterior and interior walls are free of deterioration.  10

2.3  Entrances and exits are located so as to permit efficient student traffic flow.  10

2.4  Interior walls permit sufficient flexibility for a variety of class sizes.  10

2.5  Each learning area has adequate, convenient wall outlets, phone and computer 15 cabling jacks.

2.6  Electrical outlets are safely protected with disconnect switches easily accessible. 10

2.7  Drinking fountains are adequate in number and placement, and are properly maintained, including provisions for disabled. 10

2.8  Number and size of restrooms are adequate.  10

2.9  Fire alarms, smoke detectors, and sprinkler systems are properly maintained.  10

2.10 Intercommunication system consists of a central unit that allows dependable, two-way communication between office and instructional areas.  10

TOTAL – STRUCTURAL AND MECHANICAL FEATURES  110

3.0  Plant Maintainability

3.1  Exterior windows, doors, and walls are of material and finish requiring minimum maintenance.  15

3.2  Floor surfaces throughout the building require minimum care.  15

3.3  Ceilings and walls throughout the building, including service areas, are easily cleaned and resistant to stain.  10
3.4  Built-In equipment is designed and constructed for ease of maintenance.  10
3.5  Finishes and hardware, with compatible keying system, are of durable quality.  10
3.6  Restroom fixtures are wall mounted and of quality finish.  10
3.7  Custodial closets with water and a drain are accessible throughout the building.  10
3.8  Adequate electrical outlets and power are available.  10
3.9  Outdoor light fixtures, electrical outlets, equipment and other fixtures are accessible.  10

**TOTAL – PLANT MAINTAINABILITY**  100

---

4.0  **Building Safety and Security**

4.1  Student loading areas are segregated from other vehicular traffic and walkways. 15
4.2  Walkways are available for safety of pedestrians.  10
4.3  Access streets have sufficient signals and signs to permit safe entrance and exit. 5
4.4  Vehicular entrances and exits permit safe traffic flow.  5
4.5  Playground equipment is free from hazard.  5
4.6  The heating unit is located away from student occupied areas.  20
4.7  Exterior doors open outward and are equipped with panic hardware.  10
4.8  Emergency lighting is provided throughout the building.  10
4.9  Classroom doors are recessed and open outward.  10
4.10 Flooring is maintained in a nonslip condition.  5
4.11 Glass is properly located and protected with wire or safety material to prevent student injury.  5
4.12 Adequate fire safety equipment is easily accessible.  15
4.13 There are at least two independent exits from any point in the building.  15
4.14 Automatic and manual emergency alarm systems with distinctive sound and flashing lights are provided. 15

TOTAL – BUILDING SAFETY AND SECURITY 145

5.0 Educational Adequacy

5.1 Size of academic learning areas meets desirable standards. 25

5.2 Classroom space permits arrangements for small group activity. 15

5.3 Location of academic learning areas is near related educational activities and away from disruptive noises. 10

5.4 Personal space in classroom away from group instruction allows privacy time for individual students. 10

5.5 Student storage is adequate. 10

5.6 Teacher storage is adequate. 10

5.7 Size of specialized learning area(s) meets needs. 15

5.8 Library/Resource/Media Center provides appropriate and attractive space. 10

5.9 Gymnasium adequately serves physical education instruction. 5

5.10 Pre-Kindergarten and kindergarten space is appropriate for age of students and nature of instruction. 10

5.11 Music program is provided adequate sound-treated space. 5

5.12 Space for art is appropriate for instruction, supplies and equipment. 5

5.13 Space for technology education permits use of state-of-the-art equipment. 5

5.14 Space for small groups and remedial instruction is provided adjacent to classrooms. 5

5.15 Teachers’ lounge and work areas support teachers. 10

5.16 Cafeteria/Kitchen is attractive with sufficient space for seating/dining, delivery, storage, and food preparation. 10

5.17 Clinic is near administrative offices and is equipped to meet requirements. 5
5.18 Suitable reception space is available for students, teacher and visitors. 5

TOTAL – EDUCATIONAL ADEQUACY 170

### 6.0 Environment for Education

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Overall design is aesthetically pleasing and appropriate for the age of students.</td>
<td>15</td>
</tr>
<tr>
<td>6.2</td>
<td>Site and building are well landscaped.</td>
<td>10</td>
</tr>
<tr>
<td>6.3</td>
<td>Exterior noise and surrounding environment do not disrupt learning.</td>
<td>10</td>
</tr>
<tr>
<td>6.4</td>
<td>Entrances and walkways are sheltered from sun and inclement weather.</td>
<td>10</td>
</tr>
<tr>
<td>6.5</td>
<td>Color schemes, building materials, and décor provide an impetus to learning.</td>
<td>20</td>
</tr>
<tr>
<td>6.6</td>
<td>Year round comfortable temperature and humidity controls are provided throughout the building.</td>
<td>15</td>
</tr>
<tr>
<td>6.7</td>
<td>Lighting system provides proper intensity, diffusion, and distribution of illumination.</td>
<td>15</td>
</tr>
<tr>
<td>6.8</td>
<td>Sufficient drinking fountains and restroom facilities are conveniently located.</td>
<td>15</td>
</tr>
<tr>
<td>6.9</td>
<td>Communication among students is enhanced by common areas.</td>
<td>10</td>
</tr>
<tr>
<td>6.10</td>
<td>Traffic flow is aided by appropriate foyers and corridors.</td>
<td>10</td>
</tr>
<tr>
<td>6.11</td>
<td>Areas for students to interact are suitable to the age group.</td>
<td>10</td>
</tr>
<tr>
<td>6.12</td>
<td>Large group areas are designed for effective management of students.</td>
<td>10</td>
</tr>
<tr>
<td>6.13</td>
<td>Acoustical treatment of ceilings, walls, and floors provide effective sound control.</td>
<td>10</td>
</tr>
<tr>
<td>6.14</td>
<td>Window design contributes to a pleasant environment.</td>
<td>10</td>
</tr>
<tr>
<td>6.15</td>
<td>Furniture and equipment provide a pleasing atmosphere.</td>
<td>10</td>
</tr>
</tbody>
</table>

TOTAL – ENVIRONMENT FOR EDUCATION 180