The R. H. Thomson Memorial Scholarship Program

Established 1993

To Recognize and Encourage Promising Students in Their Pursuit of Studies in Civil Engineering

Sponsored by
The Seattle Section
of the
American Society of Civil Engineers

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American Society of Civil Engineers
R. H. Thomson Memorial Scholarship Program

SCHOLARSHIP INFORMATION

The Seattle Section of the American Society of Civil Engineers (ASCE) has established a scholarship program in memory of R. H. Thomson, an outstanding engineer and a significant contributor to the development of the City of Seattle.

Applications must be sent to the R. H. Thomson Memorial Scholarship Committee at the address shown on the application form and postmarked on or before April 20th. The name(s) of the recipient(s) of the R. H. Thomson Memorial Scholarship will be announced on or before June 30th.

PURPOSE

The R. H. Thomson Memorial Scholarship Program is established to recognize, encourage, and assist promising students who have expressed interest in pursuing a career in the field of Civil Engineering.

COMMITTEE

The R. H. Thomson Memorial Scholarship Committee will evaluate all submitted applications and select the candidate who will receive the scholarship.

FORMAT

The R. H. Thomson Memorial Scholarship Program will recognize eligible students at any point in their education after their junior year in high school. The amount of the annual disbursement of awards is scheduled to provide an increasing level of encouragement and financial assistance as the recipient progresses toward receipt of a Bachelor or Master of Science degree in Civil Engineering.

ELIGIBILITY

To be eligible for the R. H. Thomson Memorial Scholarship, candidates shall be a currently enrolled student in good standing as:

- A high school senior at a high school within the nine-county geographical area allotted to the Seattle Section, ASCE, **or**;
- A student at a community college within the state of Washington, **or**;
- A freshman, sophomore, junior, senior, or graduate student attending an Accreditation Board of Engineering Technology (ABET) accredited college or university offering degrees in Civil Engineering, **and**;
- Shall be a resident (home residence at the time of graduation from high school) of the nine-county geographical area allotted to the Seattle Section of ASCE, **and**;
- Shall have demonstrated an intent to enter into and to continue a course of study leading to a Bachelor or Master of Science degree in the field of Professional Civil Engineering (inclusive of currently accepted specialties, such as structural, environmental, or hydraulic engineering), **and**;
- Shall be a citizen of the United States of America.

The Seattle Section includes the counties of San Juan, Whatcom, Skagit, Snohomish, Island, Clallam, Jefferson, Kitsap, and King.

Application

The candidate's application shall contain the following:

- A current resume addressing the eligibility criteria stated above, the current cumulative grade point averages (and basis) for all high school and college level courses taken, and a brief summary of work experience and pertinent extracurricular activities in which the candidate has been involved, and;
- Letters of recommendations from three sponsors who are either faculty members or Registered Engineers, which in all cases must be based upon the sponsor's personal knowledge of the candidate's potential as an engineer as evidenced by factors that do not rely solely or primarily on grade point average or college aptitude tests, and;
- Three short (100 to 150 words each) dissertations prepared by the candidate which address the following topics:
    - The candidate's career goals;
    - The candidate's work, educational, or life experience;
    - The candidate's school activities.

The three sponsors' recommendations are to be submitted directly to the R. H. Thomson Memorial Scholarship Committee at the address shown on the application form, with the envelope marked to indicate "R. H. Thomson Memorial Scholarship Submittal" and the text of the recommendation indicating the candidate's name on all pages. Each sponsor shall be advised by the candidate that telephone inquiries may result. The convenient times for such inquiries should be established by the sponsor and submitted with the recommendation package. Distribution of copies of the submitted recommendation to the candidate will be at the sponsor's discretion. However, the original recommendation will be considered confidential until such time as the sponsor specifically authorizes the committee to release the contents of the recommendation.

Application Evaluation and Selection

Applications submitted by candidates will be evaluated by the R. H. Thomson Memorial Scholarship Committee.

Initial ranking of finalist selection(s) will be based on comparisons of all applicants' total awarded scores from five categories in the preliminary scoring phase, with a total of 80 points available in that phase. Finalists will participate in an interview, with 20 additional points available. Finalists not selected for a major award may receive a minor award, the amount of which is to be established.

Preliminary Scoring Phase

Grade Point Average	15 Points Maximum
Recommendations*	30 Points Maximum
Career Goal*	15 Points Maximum
Work, Education, or Life Experiences	10 Points Maximum
School Activities	10 Points Maximum
Total Preliminary Points Available	80 Points Maximum

Final Phase Scoring

Interview	20 Points Maximum
Total Points Available	100 Points Maximum

* The dissertation on career goals and the recommendations from sponsors should include a statement on why the applicant will be pursuing a career in civil engineering and/or why the applicant is qualified to pursue a career/course in civil engineering.

The listed weighting of points available for the individual components of the candidate's application is intended to emphasize the importance of sponsors' evaluations of student potential that may or may not be evidenced by scholastic achievement or the results of standard testing procedures.

Evaluations of "work, educational, or life experiences" will recognize that not all working students may have had employment opportunities in the field of civil engineering or construction.

The interviews to be conducted in the final phase will be carried out by the Committee at a time and place established by them. Should time or distance constraints dictate, the interview may be carried out by tele-conference call or by designated representatives of the Committee.

The selection made by the Committee shall be final.

Award Format

In order to provide an increasing level of support and encouragement to recipients of scholarship awards, funds will be disbursed over time with an increasing amount provided each year for up to four years. The percentage of the award disbursed per year will depend upon the point in the recipient's college career at which the award is made, as established in Table 1.

The award will be given to the recipient at the beginning of the school year as shown below.

Table 1. Schedule of Award Disbursements

Year of Award	Year of Disbursement					
	Freshman	Sophomore	Junior	Senior	Graduate	
					1st Year	2nd Year
High School Senior	10%	20%	30%	40%		
Freshman		20%	30%	50%		
Sophomore			40%	60%		
Junior -if planning to attend graduate school				100% 50%	50%	
Senior -if planning to attend graduate school for one year -if planning to attend graduate school for two years					100% 50%	 50%

A recipient whose award is to be disbursed over more than one year and who is scheduled to receive a scholarship award for the coming year shall submit evidence that he/she is a student in good standing in a course of study leading to a Bachelor or Master of Science in Civil Engineering (or one of the recognized sub-specialties thereof, such as structural, environmental, hydraulic, etc.) at an ABET accredited college or university. This information shall be sent to the Chair of the Committee on or before September 30th. If the information is not received by this date, the recipient will forfeit all claims to the undisbursed portion of awards.

Seattle Section

American Society of Civil Engineers
R. H. Thomson Memorial Scholarship Program

Scholarship Application - 2019

Please complete all sections of this application and mail to:
Neil M. Hawkins
2634 86th Ave NE
Clyde Hill, WA 98004

Date of application: _____
Name: _____ Age: _____
Present address: _____
_____ Phone: _____
High school graduated from: _____
Address: _____ Zip: _____
Home address at time of graduation from high school: _____
Birthdate: _____ Citizenship: _____
Parent/Guardian: _____ Phone: _____
Address: _____
School now attending: _____
School expecting to attend next year: _____
Current school year (circle one): H.S. Senior Freshman Sophomore Junior Senior Grad
Previous junior college, college, or university attendance: course of study; degree, if any:
_____

Current grade point average: _____

School transcript attached*: Yes No
Dissertations attached*: Goals ( ) Experience ( ) School activities ( )
Three sponsors*:

	Name	Telephone/Email
1)	_____	
2)	_____	
3)	_____	

***** *These items are required elements of the application, including letters of recommendation from the sponsors. The sponsors are requested to write a letter of support as outlined in the Scholarship Program description.*

Reginald H. Thomson

THE GROWTH, HEALTH, AND prosperity of Seattle, Washington, were due in large measure to the foresight, skill, and dedication of one of the city's early engineers, Reginald H. Thomson. Born in 1856 in Hanover, Indiana, Thomson received his B.A. and M.A. degrees from Hanover College. Heading west, his first job was as a surveyor in California. Moving on, in 1881, looking for something to challenge his drive and ambition, he became assistant city engineer in Seattle. He would serve three terms as Seattle City Engineer: 1882–1887, 1892–1911, and 1930–1931, a total of more than 25 years.

Railroads

In 1893 the Seattle & Montana Railway (later the Great Northern Railway), requested a franchise to operate trains along Seattle streets, with passenger and freight terminals to be located at the waterfront. The press and most of Seattle's influential citizens were jubilant. Seattle had at last been chosen to be the Puget Sound terminus of the first trans-continental railroad.

Thomson carefully analyzed the Great Northern request and became convinced that mainline railroad tracks along Railroad Avenue would permanently block ready access to the wharves and piers, stifling the waterborne commerce so vital to the growing city. His report to the city council recommended rejection of the franchise request. Immediately he was bitterly criticized in the press and by the many citizens who saw this as the loss of the all-important railroad connection to the east.

James J. Hill, head of the railroad, came to Seattle with copies of both his franchise request and Thomson's report in hand. With his legal advisor attending, Hill had a long conversation with Thomson, who eventually persuaded Hill that his objections were valid. Hill asked Thomson what the railroad should do instead.

Thomson's earlier studies had shown that a tunnel from north of Pike Street to the tide flats near 3rd Avenue South could be built under the growing business center of the city, with the terminal at the south end. With a handshake agreement, Hill agreed to do what he could to execute Thomson's design wishes. On January 7, 1903, ten years after the handshake agreement between Hill and Thomson, Seattle, by means of Ordinance 9116, granted franchises to the two railroads to carry their trains under the city in a tunnel and to build a terminal depot near the south end.

By his foresight, tenaciousness, and patience, Thomson had guaranteed the city a permanently workable waterfront.

Street regrading

Thomson envisioned Seattle becoming a major city supported by vigorous commerce. If this was to occur, he felt city street grades would have to be 3% or less for safe wagon traffic. At the time, existing grades sometimes exceeded 20%. Thomson decided all north–south avenues would have to be regraded with cuts and fills. Intersecting east–west streets would also be brought to accommodating grades.

As examples of the work implicit in this plan, 3rd Avenue, south of Yesler, required 35 ft (10.7 m) of fill over a fast creek, and 6th and Pine needed almost 50 ft (15.3 m). Cuts of 56 ft (17.1 m) at 2nd and Stewart, 107 ft (32.6 m) at 4th and Blanchard, and 95 ft (29 m) on Jackson at 9th Avenue were typical of the spectacular changes made to accommodate the new street grades.

Of the more than 8 million cubic yards (6.12 million m^3) of material excavated, about 2.5 million cubic yards (1.91 million m^3) went into fills along the streets and 3.5 million cubic yards (2.67 million m^3) onto the tide flats south of Jackson Street.

University of Washington Press, Seattle

Water systems

One month after the disastrous fire of 1889 gutted the business area of Seattle, demonstrating the total inadequacy of the existing water system, the nationally recognized hydraulic engineer Benezette Williams was hired to plan and construct municipally owned water works for the city, which had at that time a population of over 42,000.

Unfortunately, no public funds were available at the time for construction of the water works. The panic of 1892 had caused hard times all over the country, particularly in the northwest. Seattle was bonded up to its limit under state law, and Thomson seemed frustrated at every turn in his efforts to get construction started on the city's Cedar River supply system.

A ray of hope came late in 1895 when the state supreme court legalized the issuance of warrants, or revenue bonds, by the city of

Roy W. Morse
City Engineer, retired
Seattle, Washington

Spokane to pay for improvements to their water system. Thomson immediately seized this then innovative idea. With his assistant George Cotterill, they prepared an ordinance calling for $2,250,000 in revenue bonds.

Approved by the city council, their ordinance was signed by the mayor on October 29, 1895, and Ordinance 3990 became the master ordinance of Seattle's Cedar River gravity water supply system.

In 1945 Chester Morse negotiated the Cedar River Logging and Land Exchange Agreement which spelled out the steps leading to eventual complete ownership by the city. A 44-in. (1.11 m) pipeline, mostly woodstave, brought gravity water 28.5 mi (45.8 km) from the intake near Landsburg through the trackless, forested hills and valleys to the new reservoirs on Beacon Hill and Volunteer Park. Water was first delivered, with capacity in excess of 10 MGD, on January 10, 1901. Confirming Thomson's faith in Cedar River as a reliable source for the expanding population, during the summer of 1991, peak demand from the Cedar River alone, through multiple pipelines, was 210 MGD.

For the distribution grid in the city, Thomson insisted that no pipe smaller than 6-in. (15.2 cm) be used, with the goal in mind of providing adequate water for fire fighting. In actuality, most pipe in the grid is 8-in. (20.3 cm) cast iron pipe.

City light

Thomson began in 1897 to explore the hydroelectric potential below Cedar Lake. The approximately 600 ft (183 m) elevation difference between the lake and a site below Cedar Falls presented tantalizing possibilities. He and his assistant visited installations in Montana, British Columbia, and California. Months of study proved it feasible.

Plans were prepared, calling for a timber crib dam 0.5 mi (.80 km) downstream from Cedar Lake. From there a wood stave pipeline would carry water to below the falls where the power house would be built, housing the Pelton wheel and the 2,400 KW generator.

Nearly 2 million board feet of finished lumber was needed to build the crib dam and the woodstave pipe line. Bids came in at $35 per 1,000 FBM delivered. Against vigorous opposition, Thomson bought saw mill machinery and assembled his own mill deep in the old growth forest near the dam site. The lumber produced there cost the city $11 per 1,000 FBM. After selling the machinery at a profit, savings to the City exceeded $75,000.

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Seattle City Light was born on January 10, 1905, when the first electricity to street lights was turned on. From that very first year, City Light income has exceeded cost of operations by wide margins. As an example, income in 1905 was $45,475, while expenses were only $23,589.

Sewers

Between 1875 and 1880, Seattle had a diphtheria epidemic. Sewers were nonexistent, population in 1880 was 4533. As the population grew, concern mounted over the lack of sewers. With population passing the 40,000 mark and a threat of cholera menacing the Pacific Coast, Williams was again hired, this time to prepare plans for a sewer system.

Thomson adopted most of Williams plan with only one change: disagreeing with Williams' original plan for multiple sewer discharges into Lake Washington, Thomson built an interceptor along the lake to carry the flows to the major outfall in Salmon Bay.

By the time the Lake Union sewer tunnel, which emptied into shallow salt water at the foot of Denny Way, had been completed, it became evident to Thomson that a better location in Puget Sound would have to be found. After measuring currents along the beaches of Puget Sound, Thomson determined that there was only one location where the current was always outflowing on both incoming and outgoing tides: the north bank of Fort Lawton.

Having established to his satisfaction the best site for the Seattle's major outfall, Thomson went to the Commandant of Fort Lawton, only to be told that the War Department would have to be approached for permission for this use of federal land. After four years of persistent negotiations, Thomson convinced the War Department of the public benefits of his plan. The city accepted a permit for the discharge of the sewer at the point desired on May 28, 1909.

The North Trunk Sewer was constructed between 1909 and 1911 to collect the flows from the northeast quarter of Seattle and from along Lake Washington, with the discharge outfall at West Point. Thomson's long-range thinking led him to build this facility far in excess of the then minimal population requirements. His North Trunk system continues today to be a major element of Metro's modern collection network.

In recognition of his many engineering achievements over several decades, Thomson was made an Honorary Civil Engineer member of the American Society of Civil Engineers in 1941.