CRANBROOK

ARCHIVES

Capital Projects Records: Kingswood Roof Replacement

Records, 1998-2007
6 linear ft.

Acquisition Number:	1998-13
Acquisition:	Transferred from the Capital Projects Office in 2003.
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Preferred Citation:	Capital Projects Records, Cranbrook Archives, Bloomfield Hills, Michigan
Index:	See end of finding aid.
Architectural Drawings:	Catalogued on the Horizon database.
Multimedia:	The VHS tapes have been moved to the Videotape Collection and the CDs & DVDs have been transferred to the Optical Media collection.
Processing:	Megan Keller, 2010

HISTORY

Kingswood School was established through a gift by Ellen Scripps Booth, who wished to provide young women with a place to continue their education after graduating from Brookside. A Deed of Trust was made July 24, 1930 between the Cranbrook Foundation and the Board of Trustees. The school was officially opened September 21, 1931 as a day and boarding school for girls in grades 7 through 12.

The chief architect of the Kingswood School project was Eliel Saarinen. The Kingswood building is considered one of his finest works, and the only building to vary from his signature architectural style, incorporating concepts from the Prairie School. Perhaps the most significant element of the school is its copper roof, one of the largest in the United States, totaling over 90,000 square ft. Another striking element is its hidden drainage system through rain water conductors (RWCs) located on the roof into pipes hidden within the building. Both of these elements were instrumental in Kingswood's appointment as a National Historic Landmark.

However, around seventy years after its completion, the roof was badly in need of repair. Weather conditions that were unanticipated in 1931 had critically damaged the copper roofing, causing leaks. No upgrades had been done to the roof since Saarinen had completed the project, save a urethane coating in 1988 to unsuccessfully slow the leaks. This coating was responsible for the previous minty green color, and not natural copper patina.

The project was divided into two phases. Phase One replaced the academic wing of about 30,000 square ft. It acted as a prototype for Phase Two, which covered the rest of the building and gatehouse, over 60,000 square ft. Phase Two also included 3,000 linear feet of gutter replacement. The main goal of the project was to protect against future leakage. Weather protection was added in the form of an ice/water shield membrane underneath the copper roofing. To further facilitate better drainage, six downspouts and 12 RWCs were added to the existing system. Locations on the roof are charted based on their proximity to RWCs. To complete Phase One, the Cranbrook Educational Community (CEC) hired The Christman Company as main contractors and Watson & Henry Associates as the project architects. Phase One spanned from 1998 to 2002. Substantial completion certification was issued on October 9, 2002.

To complete Phase Two, CEC hired Skanska as primary contractors and Quinn Evans Architects as the project architects. Phase Two spanned from roughly 2005 to 2007. As the copper roofing was replaced on the rest of Kingswood, remediation was performed on certain areas of Phase One to conform it to the project specifications. The old copper roofing was recycled, with some of it remade into keepsakes for alumni. Nothing was applied to the new roofing to color it; it was left to obtain a natural patina over time. The school remained open throughout the construction phases, though efforts were made to have the bulk of the work take place in the summer.

The firm Soil and Material Engineers analyzed various samples and reports throughout both phases. Their main focus was the evaluations of monthly copper "coupons" from copper

solderers. To maintain a high level of quality, especially for a historical building, copper solderers were retested and had to re-qualify monthly to continue working on the project. Testing was done by removing small sections from the flat seam and gutter seam of the new copper roofing. To pass the evaluation, solder had to completely penetrate the seams.

Scope and Content of Collection

The records reflect the process of the roof replacement, as well as renovation of the drainage system and attic. Records include correspondence, meeting minutes, specification sheets for various materials, and various reports on the progress as well as the materials/processes. Photographs are also included at the end of the collection. Most of the records are correspondence between the CEC and the main contractors. The collection is arranged according to the company who originally created the records. The folders are arranged alphabetically and items within each folder chronologically within the subseries.

As the roof and attic was replaced, artifacts were discovered, presumably from the original construction. These items are placed at the end of the collection. Mortar and other material samples from the restoration are also included.

Related Collections

Cranbrook Architectural Office, 1925-1987 architectural drawings
Cranbrook Architecture Office, 1992-1998

Box Number—Description

Box 1

1. Attic Assessments, Jan-Nov 2005
2. Campus Correspondence, Sept 1998-Nov 1999
3. Campus Correspondence, Feb 2000-Nov 2001
4. Campus Correspondence, Nov 2004-Apr 2007
5. CEC Correspondence—E-mail, Dec 1998-Jul 1999
6. CEC Correspondence—E-mail, Aug-Nov 1999
7. CEC Correspondence—E-mail, Dec 1999-Mar 2000
8. CEC Correspondence—E-mail, Apr-Sept 2000
9. CEC Correspondence—E-mail, Oct 2000-Jun 2001
10. CEC Correspondence—E-mail, Jul 2001-Feb 2002
11. CEC Correspondence—E-mail, Oct 2004-May 2005
12. CEC Correspondence—E-mail, Jun 2005-Jan 2006
13. CEC Correspondence—E-mail, Feb-May 2006
14. CEC Correspondence—E-mail, Jun 2006-Aug 2007
15. The Christman Company—Construction Cost Estimates, May-Jun 1999
16. The Christman Company—Correspondence—Contractor Recommendations, Feb-Dec 1999
17. The Christman Company—Correspondence, Feb 1998-Mar 1999
18. The Christman Company—Correspondence, Apr-May 1999
19. The Christman Company—Correspondence, Jun-Aug 1999
20. The Christman Company—Correspondence, Sept-Dec 1999
21. The Christman Company—Correspondence, Jan-Jun 2000
22. The Christman Company—Correspondence, Jun-Oct 2000
23. The Christman Company—Correspondence, Nov 2000-Jun 2001
24. The Christman Company—Correspondence, Jul 2001-Dec 2002
25. The Christman Company—Construction contract, 14 Jun 1999
26. The Christman Company—General Conditions of Construction Contract, Jun 1999
27. The Christman Company—General Contractor's Report, 30 Sept 1999
28. The Christman Company—General Contractor's Report, 31 Oct 1999
29. The Christman Company—General Contractor's Reports, 31 Dec 1999-31 Jan 2000
30. The Christman Company—General Contractor's Report, 31 Mar 2000
31. The Christman Company—General Contractor's Reports, 31 Jan-28 Feb 2001
32. The Christman Company—General Contractor's Reports, 31 Mar-30 Apr 2001
33. The Christman Company—General Contractor's Reports, 31 May 2001-30 Jun 2002
34. The Christman Company—Preconstruction Services Agreement, 1 Jun 1998
35. The Christman Company—Requests for Information, Aug-Oct 1999
36. The Christman Company—Requests for Information, Nov 1999-Jan 2001
37. The Christman Company—Scaffolding Bid Package #1, May 1999

38. Quinn Evans Architects—Architect's Supplemental Instructions, Oct 2005-Dec 2006
39. Quinn Evans Architects—Proposal Requests, Feb 2006-Jan 2007
40. Quinn Evans Architects—Proposals for Services, Aug 2004
41. Quinn Evans Architects—Requests for Information, Sept 2005-Aug 2006

Box 2

1. Quinn Evans Architects—Site Visit Reports, Jun 2005-Jan 2006
2. Quinn Evans Architects—Site Visit Reports, Feb-Jun 2006
3. Quinn Evans Architects—Site Visit Reports, Jul-Oct 2006
4. Quinn Evans Architects—Site Visit Reports, Nov 2006-Mar 2007
5. Skanska—Bid Package #1, Jun-Jul 2005
6. Skanska—Change Issues—Roof Remediation, Apr-Jun 2007
7. Skanska—Change Issues, Oct 2005-Jul 2006
8. Skanska—Change Issues, Aug-Oct 2006
9. Skanska—Change Issues, Nov 2006-Jul 2007
10. Skanska—Closeout Manual (1 of 3)
11. Skanska—Closeout Manual (2 of 3)
12. Skanska—Closeout Manual (3 of 3)
13. Skanska—Concrete specifications, Oct 2005-Oct 2006
14. Skanska—Construction Documents/Project Manual—Bid Documents, 1 Sept 2006
15. Skanska—Construction Documents/Project Manual—16 Jun 2005 (1 of 2)
16. Skanska—Construction Documents/Project Manual—16 Jun 2005 (2 of 2)
17. Skanska—Correspondence, Aug-Nov 2004
18. Skanska—Correspondence, Dec 2004-Jan 2005
19. Skanska—Correspondence, Feb-Mar 2005
20. Skanska—Correspondence, Apr-Jun 2005
21. Skanska—Correspondence, Jul-Aug 2005
22. Skanska—Correspondence, Sept-Nov 2005
23. Skanska—Correspondence, Dec 2005-Jan 2006
24. Skanska—Correspondence, Feb-Apr 2006
25. Skanska—Correspondence, May 2006
26. Skanska—Correspondence, Jun-Sept 2006
27. Skanska—Correspondence, Oct 2006-Mar 2007
28. Skanska—Correspondence, Apr-Aug 2007
29. Skanska—Electrical Submittals, Oct 2005-Feb 2006
30. Skanska—Finishes, Feb-May 2006
31. Skanska—Masonry Submittals, Oct 2005-May 2006
32. Skanska—Mechanical Specifications/Plumbing, Dec 2005-Oct 2006
33. Skanska—Meeting Minutes, Feb-May 2005
34. Skanska—Meeting Minutes, Jun-Oct 2005
35. Skanska—Meeting Minutes, Nov-Dec 2005
36. Skanska—Meeting Minutes, Jan-Feb 2006

Box 3

1. Skanska—Meeting Minutes, Mar-Apr 2006
2. Skanska—Meeting Minutes, May-Jun 2006
3. Skanska—Meeting Minutes, Jul-Sept 2006
4. Skanska—Meeting Minutes, Oct-Dec 2006
5. Skanska—Meeting Minutes, Jan-Mar 2007
6. Skanska—Meeting Minutes, Apr-Jun 2007
7. Skanska—Metals Specifications, Apr-Aug 2006
8. Skanska—Project Execution Plan, c. early 2005
9. Skanska—Project Status Reports 1 & 2, Sept-Oct 2005
10. Skanska—Project Status Reports 3 & 4, Nov-Dec 2005
11. Skanska—Project Status Reports 5 & 6, Jan-Feb 2006
12. Skanska—Project Status Reports 7 & 8, Mar-Apr 2006
13. Skanska—Project Status Reports 9 & 10, May-Jun 2006
14. Skanska—Project Status Reports 11 & 12, Jul-Aug 2006
15. Skanska—Project Status Reports 13 & 14, Sept-Oct 2006
16. Skanska—Project Status Reports 15 & 16, Nov-Dec 2006
17. Skanska—Project Status Reports 17 & 18, Jan-Feb 2007
18. Skanska—Project Status Reports 19 & 20, Mar-Apr 2007
19. Skanska—Project Status Report 21, May 2007
20. Skanska—Roof Valley Reports, Dec 2006-May 2007
21. Skanska—Safety/Fire Protection Program Manuals, Jun 2005

Box 4

1. Skanska—Sitework, Dec 2005-Jul 2006
2. Skanska—Thermal & Moisture Submittals, Sept 2005-Jan 2007
3. Skanska—Wood & Plastic Specifications, Oct-Dec 2005
4. Soil & Materials Engineers—Copper Coupon Testing/Analyses, Dec 1999-Mar 2000
5. Soil & Materials Engineers—Copper Coupon Testing/Analyses, Apr-Aug 2000
6. Soil & Materials Engineers—Copper Coupon Testing/Analyses, Oct 2000-Oct 2001
7. Soil & Materials Engineers—Copper Coupon Testing/Analyses, Aug 2005-Jul 2006
8. Soil & Materials Engineers—Copper Coupon Testing/Analyses, Aug 2006-Apr 2007
9. Soil & Materials Engineers—Copper Roofing Checklist Reports, Nov 1999-Feb 2000
10. Soil & Materials Engineers—Copper Roofing Checklist Reports, Mar-Apr 2000
11. Soil & Materials Engineers—Copper Roofing Checklist Reports, May-Jun 2000
12. Soil & Materials Engineers—Copper Roofing Checklist Reports, Jul-Aug 2000

13. Soil & Materials Engineers—Copper Roofing Checklist Reports, Oct 2000-Feb 2001
14. Soil & Materials Engineers—Copper Roofing Checklist Reports, Mar-Apr 2001
15. Soil & Materials Engineers—Copper Roofing Checklist Reports, May-Sept 2001
16. Soil & Materials Engineers—Copper Roofing Checklist Reports, Dec 2005-Jul 2006
17. Soil & Materials Engineers—Copper Roofing Checklist Reports, Aug 2006-Mar 2007
18. Soil & Materials Engineers—Correspondence, Jul 1999-Jun 2002
19. Soil & Materials Engineers—Correspondence, May 2005-Dec 2006
20. Soil & Materials Engineers—Testing Reports, Jul 1999-Jun 2000
21. Soil & Materials Engineers—Testing Reports, May 2005-Mar 2007
22. Watson & Henry Associates—Architect's Supplemental Instructions, Jul 1999-Jul 2001
23. Watson & Henry Associates—Change Orders, Oct 1999-Feb 2002
24. Watson & Henry Associates—Contract Agreement, 7 Jan 1999
25. Watson & Henry Associates—Correspondence, Apr-Dec 1998
26. Watson & Henry Associates—Correspondence, Jan-Jul 1999
27. Watson & Henry Associates—Correspondence, Aug-Dec 1999
28. Watson & Henry Associates—Correspondence, Jan-Dec 2000
29. Watson & Henry Associates—Correspondence, Jan-May 2001
30. Watson & Henry Associates—Correspondence, Jun 2001-May 2002
31. Watson & Henry Associates—Design Development Report, 5 Mar 1999
32. Watson & Henry Associates—Meeting Minutes, Jan-Aug 1999

Box 5

1. Watson & Henry Associates—Meeting Minutes, Sept-Nov 1999
2. Watson & Henry Associates—Meeting Minutes, Dec 1999-Jan 2000
3. Watson & Henry Associates—Meeting Minutes, Feb-Mar 2000
4. Watson & Henry Associates—Meeting Minutes, Apr-Jul 2000
5. Watson & Henry Associates—Meeting Minutes, Aug-Dec 2000
6. Watson & Henry Associates—Meeting Minutes, Jan-Jun 2001
7. Watson & Henry Associates—Meeting Minutes, Jul-Nov 2001
8. Watson & Henry Associates—Proposal Requests, Aug 1999-Apr 2001
9. Watson & Henry Associates—Schematic Design Report, 27 Feb 1998
10. Watson & Henry Associates—Submittal/Review—Coatings Removal, Aug 1999-Jan 2000
11. Watson & Henry Associates—Submittal/Review—Fire Protection, Jun-Sept 1999
12. Watson & Henry Associates—Submittal/Review—General Carpentry, Apr 1999-Aug 2000
13. Watson & Henry Associates—Submittal/Review—Lightning Protection, Dec 1999-Mar 2000

14. Watson & Henry Associates—Submittal/Review—Masonry, Jun 1999-May 2001
15. Watson & Henry Associates—Submittal/Review—Painting, Aug 1999-Mar 2000
16. Watson & Henry Associates—Submittal/Review—Plaster, Dec 1999
17. Watson & Henry Associates—Submittal/Review—Roof & Sheet Metal, Aug 1999-Mar 2001
18. Watson & Henry Associates—Submittal/Review—Scaffolding, Jun-Aug 1999
19. Watson & Henry Associates—Submittal/Review—Steel Outriggers, Sept 1999-Jan 2000
20. Watson & Henry Associates—Technical Specifications and Details, 18 Jun 1999
21. Watson & Henry Associates—Technical Specifications and Details, 30 Oct 2001
22. CEC—Photographs, Jun 1999
23. CEC—Photographs, May-Oct 2001
24. CEC—Photographs, Jan 2002
25. Construction Photographs, Dec 1999-Nov 2006
26. Phase 2 Photo Reproductions, n.d.
27. Skanska—Exterior Photo Reproductions, Nov 2005
28. Skanska—Interior Photo Reproductions, Nov 2005
29. Soil & Materials Engineers—Photo Reproductions, Mar-Sept 2001
30. Soil & Materials Engineers—Photographs, 22 Jun 2000

Box 6-Realia

1. Original Embossed Copper Fascia from Eave (with urethane coating)
2. Empty 16 fl. oz. Glenmore Bourbon Glass Bottle
3. Two Masonry Pine Floats, encrusted with original mortar
4. Original Ceiling Plaster from Building Interior
5. Original Buff-colored Mortar Sample from Building Exterior
6. Original Green-colored Mortar Sample from Building Exterior
7. Three Empty Paratex Splicing Compound Cardboard Boxes
8. Three Paratex Black Friction Tape Cardboard Boxes—Tape included
9. Three Corks
10. Galvanized Lock Nuts Cardboard Box Top
11. Dented Paint Can—Paint stains inside indicate dark brick color
12. Nokorode Soldering Paste/Flux Tin
13. Two General Electric Mazda Lamps Corrugated Sleeves
14. Wonder Bread wax paper wrapper
15. Empty Lucky Strike Cigarette Package
16. Empty Chesterfield Cigarette Package
17. Two Empty Old Gold Cigarette Packages
18. Empty Matchbook Advertising the Personal Finance Company of Royal Oak
19. Piece of Semi-insulated Wire
20. Two Chunks of Wood, presumably from attic interior

21. “Kondu-Box Bodies” Cardboard Box Top
22. Small Light Bulb
23. Euclid-Super Concentrated Mortar Color Sample — “#891 Black,” inside a film canister
24. Solomon-Mortar Color Sample — “#50A Green,” inside a Ziploc Bag
25. Euclid-Super Concentrated Mortar Color Sample — “#210 Lt. Buff,” inside a film canister
26. Euclid-Super Concentrated Mortar Color Sample — “#210 Lt. Buff,” inside a Ziploc Bag
27. Fine Grind-Sample Aggregate of Washtenaw Sand, inside a Ziploc Bag
28. Coarse Grind-Sample Aggregate of Washtenaw Sand, inside a Ziploc Bag
29. Hydraulic Lime Sample-Rolico Mortar “Lok Type 5,” inside a Ziploc Bag
30. Cement Sample “LaFarge—Type I—Portland,” inside a Ziploc Bag
31. Watson & Henry Associates—Architectural Submittal Samples, Aug 1999

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