June 24, 2024

GHT Japan Co., Ltd.
Kameda-Denki Co., Ltd.

Final report of road heating trial with AHT's ribbon installation and equipment in Otaru City – Hokkaido, Japan

Construction trial of Amorphous Ribbon installation in part of the sidewalk in front of "Dormy Inn" (left side of the yellow block) vs. Heating Cables (right side of the yellow block).

Kameda Denki Co., Ltd., an official distributor of GHT Japan Co., Ltd., have completed successfully on 31/10/2023 the installation of AHT's Outdoor heating and de-icing system in "Ekimae" Intersection Sidewalk in front of "Dormy Inn", located in ***Otaru City*** (**小樽市**), Hokkaido, the northern island of Japan.

Courtesy of "freeworldmaps.net"

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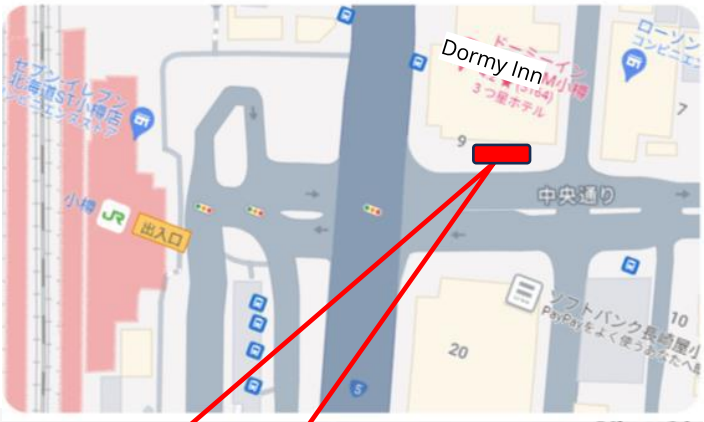
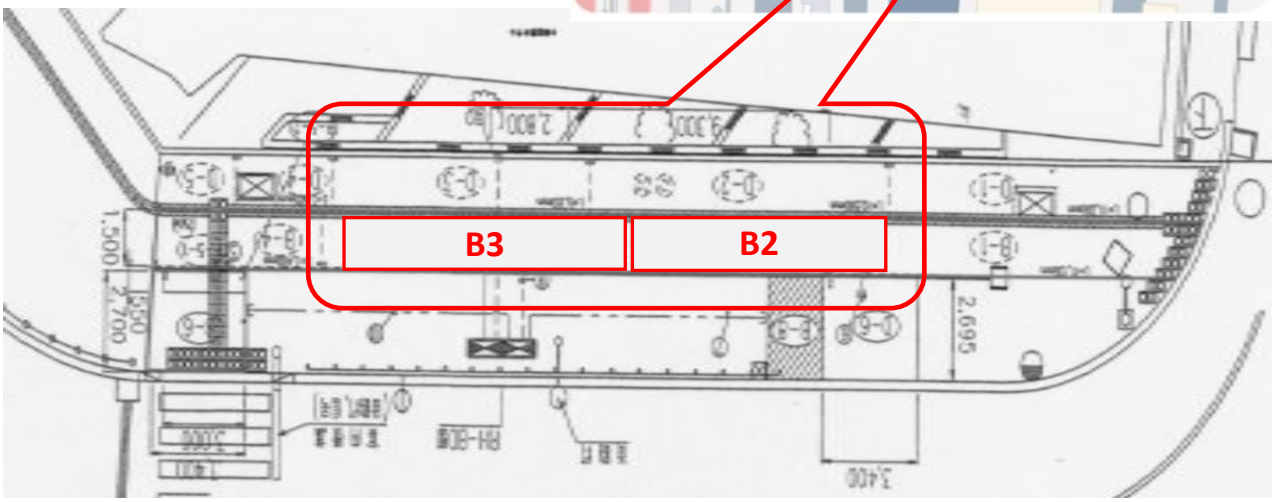
A brief overview of the construction for the test:

- Construction location:
  Sidewalk in front of “Dormy Inn” near Otaru JR Train Station
  Width 1.5m x total length 19.5m divided into two segments B2 & B3
- Construction details:
  The malfunctioning B2 and B3 std. electric heating cables were removed and replaced with amorphous heater Amo Ribbon was installed. The control panel has been modified so that the controls (moisture sensor, soil temperature sensor) are different from those of other electric cable heaters.
  A camera is installed above the control panel so that snow melting conditions can be checked. (Right photo)
  - B2 heater 15.9 ㎡ 4.77Kw
  - B3 heater 13.4 ㎡ 4.02Kw
- Construction completion date: October 31, 2023





Weather and Outdoor Ribbon Heating operating status report (March 6, 2024).

The purpose of this trial per the request by the Otaru municipal administration was to compare the performance of AHT's outdoor Heating Ribbon vs. std. Heating Cables.

The two systems were controlled by the same control unit of the heating cable which was already installed. This condition was not optimal for the AHT's heating ribbons but was forced by the city of Otaru.

During this test construction, AHT's Ribbon and Heating Cable were installed side by side on the sidewalk and by comparing the videos of the snow melts and sensed the heaters temperature, we found out that AHT's Ribbon was energized longer than it should due to the underperforming heating cables' control system!

And yet, at the end of the winter's snow season the recorded data was collected and processed to reveal that:

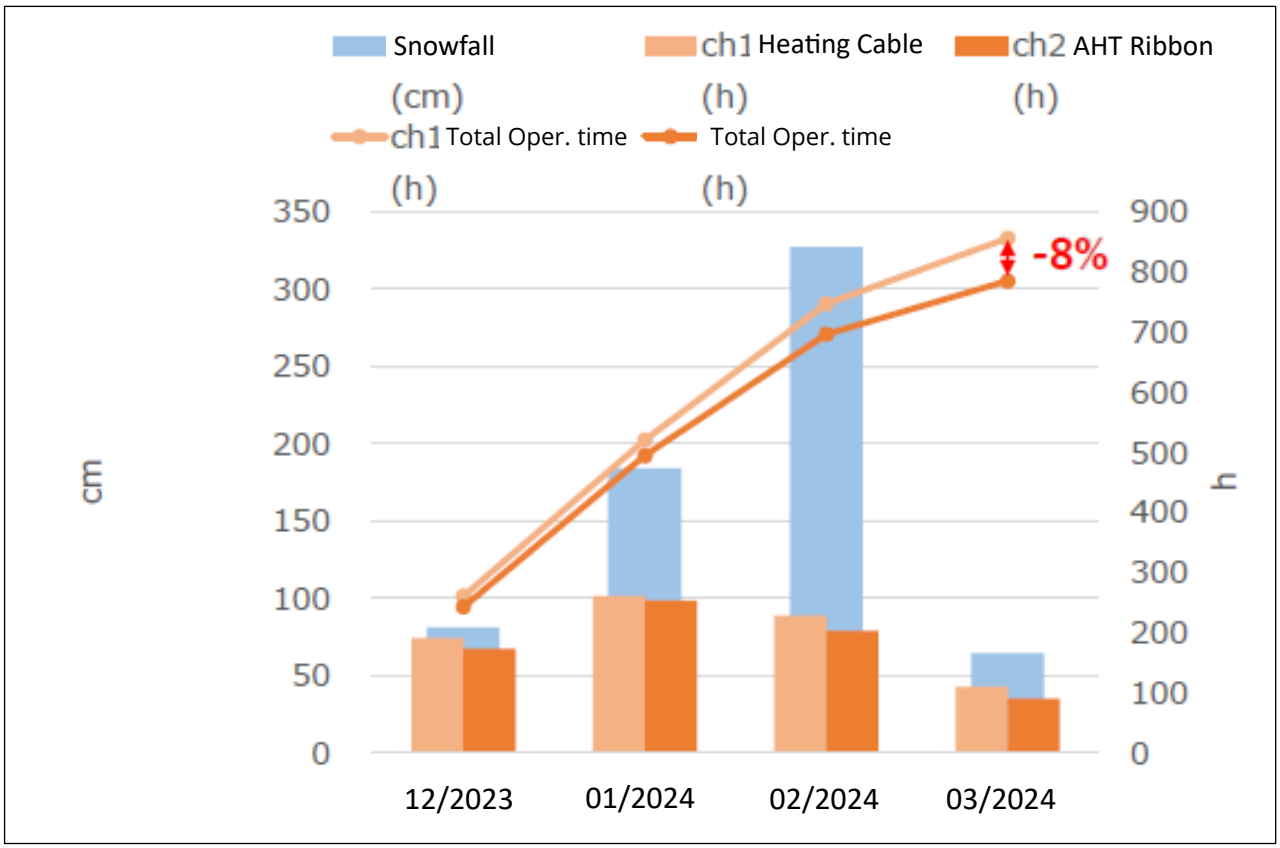
a. AHT's ribbons was effective in melting the snow even when heavy snowfall of about 90cm deep took place.
b. Even with the same snow melting control as electric heating cables, AHT Ribbon's electricity usage was less by 8% compared to electric heating cables.
c. It was found that by adjusting the control settings to eliminate waste in operating AHT's Ribbons, the electricity usage could be reduced by about 30%

Record of snow melting at the AHT's Ribbons Area (Yellow Marked)

Pictorial status of the area around "Dormy Inn" at around 2 p.m. on January 16, 2024
After a record 90 cm of snowfall on the 7th and 8th, additional 45 cm of snowfall was accumulated by the 16th.
The photos depicting the aftereffects of the heavy snow piles, and areas without snow removal or road heating are uneven.

Time: 14:00
Air Temperature: 1.1°C
Ground surface Temp.: 7.2°C
Buried AHT's Ribbon Temp.: 8.9°C

Monthly snowfall and heaters operation time
(Ch1: Heating Cable, Ch2: AHT Ribbon)



	December 2023	January 2024	February 2024	March 2024
Snowfall (cm)	81	184	327	64
Heating Cable (Hours)	190	260	227	109
AHT Ribbon (Hours)	172	252	202	89
Ch1 Total Operating time (Hours)	260	520	747	856
Ch2 Total Operating time (Hours)	242	494	696	785

The conclusions we had from this trial:

1. AHT Ribbons should not be added to an existing control system but rather use its own dedicated system in order to achieve the best performance at minimal running cost
2. AHT's Ribbons are superior to Heating Cable performance wise and running cost.

We trust that the City of Otaru will adopt AHT's Ribbons instead of Heating Cables