

**Request for Proposal:**

**Developing a Custom Rollator for Improved Mobility of a User with  
a Physical Disability**

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## 1. Introduction

This request for proposal frames the opportunity of improving the mobility of a rollator user with a physical disability. In particular, this document considers the lived experience of Lauren, a participant at Developing and Nurturing Independence (DANI). It explores relevant stakeholders and considers the team's position, assumptions and biases and how they will be addressed. Further, the RFP develops a detailed set of requirements for potential solutions, focusing on safety, ergonomics and usability.

## 2. Community and Opportunity Background

DANI is a not-for-profit organization that supports adults with developmental disabilities. DANI is a person-centred community which seeks to develop the skills of their participants and provide them with a sense of purpose [Appendix A1]. DANI has several programs that offer opportunities for participants to develop their educational and social skills, chief among them the Day Program which runs 9:00 to 4:00 on weekdays at both of DANI's locations. It offers a holistic experience, allowing participants to participate in activities related to physical activity, literacy, art, music, and religion. The program is tailored to each participant's interests and strengths, as DANI aims to provide its participants with the ability to participate fully as valued members of the community. One such participant is Lauren, who attends the day program at DANI's Magnetic Campus, located in North York.

Lauren uses a rollator to help her walk safely (Figure 2). A rollator is a walking frame equipped with wheels made for people who need support while walking (See Technical Background). Limitations in Lauren's current rollator cause her to struggle to complete tasks independently. In the day program, Lauren has difficulties engaging in kitchen skills. Washing her hands/dishes pose issues as she still must maintain stability with her rollator but it is unable to fit under the sink [Appendix A3]. Most notably, Lauren is not able to safely get up from and sit down on her rollator or get into a car without DANI staff assistance. Specifically, the device is unstable and cannot hold from the weight or adequately brake. Furthermore, the poor maneuverability of the device limits her turns and lateral motion which raises concerns when using the bathroom in and out of the DANI campus [Appendix A3]. She also has trouble moving freely with her rollator due to her non-traditional gait and weight preference on her left side [Appendix A1].



Figure 1: A group photo of participants at DANI's day program.



Figure 2: Lauren using her rollator at DANI.

**As such, our team and DANI have identified an opportunity to improve Lauren's mobility through the development of a safe and comfortable custom rollator considering her particular needs.**

### **3. Technical Background on Rollators and Gap in the Market**

Rollators are a type of assistive walking device that is distinguished by their wheels and push-pull movement type. They allow a person to reduce the risk of falling and maintain stability while walking with the use of hand grips or bars on which users can rest their arms [1]. From the bars, a frame is designed to hold the user's weight. There exists a diverse group of users for rollators and walkers; namely, the elderly, individuals with physical, developmental disabilities, and individuals in physical rehabilitation. These differ from standard walkers with a lift-and-carry movement type that is more suitable for only seniors.

According to DANI staff with years of experience working with physical disabilities and occupational therapy history, most assistive mobility aids are made with seniors in mind. Specifically, they are tools to improve balance or have some stability which is reflected in the needs of seniors. However, there is a need for people with disabilities who have specific mobility issues related to gait or posture, and put all or most of their weight onto an assistive device [Appendix A1]. This is further proved by communication with Lauren's physiotherapist stating that apart from her current rollator (Figure 3), which does not adequately suit her needs, "there's nothing else [available]" [Appendix A2]. This gap in the market can be further surveyed from secondary research. Statistics Canada suggests that among people with disabilities that use a wheeled mobility device, there is a need for additional devices to enable more activities and facilitate access to different environments [3].



Figure 3: The rollator Lauren currently uses: Evolution Xpresso. [2]

### **4. Stakeholders**

This section will break down the main stakeholders for this opportunity, looking at each of their needs as they relate to improving Lauren's lived experience at DANI. The three critical stakeholders are Lauren, her family, and the DANI staff.

#### **4.1 Lauren**

Lauren is the primary stakeholder for this opportunity as it is her needs that the rollator will be designed to meet. Lauren has a rare genetic disability, CTNNB1. Its symptoms include mild intellectual disability, learning disabilities, muscle issues, ADHD and mood disorders [Appendix A3]. Due to her disability,

Lauren struggles to use her walker independently, requiring aid from her family or the DANI staff to complete essential tasks, such as standing and sitting (See figure 4), using the washroom and generally moving [Appendix A3]. Lauren experiences discomfort while walking due to her non-traditional gait not being accommodated by the width of her rollator [Appendix A2]. Further, her current rollator is not stable enough, and as a result, feels unsafe standing up and sitting down or getting in vehicles independently. Use of her rollator also results in privacy issues as it does not provide her with adequate accommodation while using the washroom, i.e. she is unable to close and open the door by herself or turn herself around in the stall [Appendix A3]. The deficits in Lauren's mobility caused by her rollator can restrict participation in a given environment [4]. For example, Lauren can not currently participate in places like the kitchen where she somehow needs to maintain stability while completing other tasks with her hands [Appendix A3]. Developing a personalized rollator that fits Lauren's needs would allow her to become a more active participant in her daily life and equip her with a greater feeling of independence.

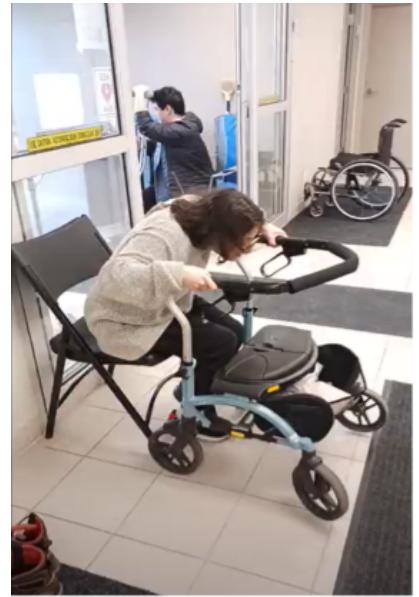


Figure 4: Lauren standing up independently. Her front wheels come off the ground, illustrating the need for assistance.

#### 4.2 DANI Staff

The staff at DANI have a vested interest in creating the best circumstances for their clients. DANI's main goal is to provide their participants with the ability to participate fully as independent members of the community. One of the ways they seek to achieve this is through their day program. However, the staff at DANI has found that "Lauren would be able to be more physically independent at DANI and in the community if she has the proper support" [Appendix A3]. More specifically, Lauren has issues socializing and participating in many of the programs DANI runs due to a lack of mobility in her rollator (See Section 2) [Appendix A3]. They cite that the lack of mobility in her current rollator causes Lauren to initiate fewer peer interactions [Appendix A3]. They also discuss her dependence on the staff due to the lack of safety in her rollator when she transitions between standing and sitting as well as getting in and out of vehicles [Appendix A3]. As a result, the DANI staff has a stake in improving Lauren's rollator, such that the programs they run can better provide her with the necessary skills to become an independent member of society.

#### 4.3 Lauren's Family

Lauren's family holds a critical stake in this opportunity. Firstly, they would be the ones purchasing Lauren's rollator, and as they have informed us, potential solutions need to be affordable [Appendix A3]. Secondly, they are responsible for the primary care of Lauren so her safety and well-being are of the utmost importance to them. Lauren's family has explained that outside of DANI she has similar issues, including a lack of privacy as she has to keep her doors open, as well as needing others' assistance when moving from one area to another [Appendix A3]. Because of this, Lauren's family has an interest in the development of a rollator which would allow their daughter to be safer and independent.

## **5. Positionality**

Another key stakeholder in the design process is the design team itself. Thus, it is important to acknowledge the implications of the team position, and how values, assumptions, and biases affected communication with the community, specific content addressed, and the approach to the creation of this document.

Our team is connected through our shared values of accessibility and empathy, which guided us through the framing of this opportunity. Accessibility is embodied in all of the work we do, as a potential solution must consider the needs of those with disabilities and not be limited to able-bodied individuals. As such, safety and ergonomics are principles we value since the failure to acknowledge accessibility concerns introduces barriers to the comfort and independence of disabled people. Further, our team is driven by empathy, valuing user-focused, participatory design through direct interaction with key stakeholders. In turn, our team focused on representing the unique use cases of disabled individuals in our requirements. Not only did this opportunity arise from DANI, but the entire framing process was made in concert with their staff and participants. To accurately represent DANI, they had a hand in the choice of higher-level objectives, and our scoping and rescoping of the opportunity itself.

Our team strives to fairly and accurately interpret the opportunity. As such, it is vital that we acknowledge our assumptions and biases that may inhibit this work and how we will overcome them. Firstly, though there was an awareness of rollators used for individuals with physical disabilities, most of our prior knowledge of rollators was developed from the experiences of senior citizens. To combat this, we made an attempt to access sources highlighting rollators for those with physical disabilities so that our interpretations were grounded in a relevant background. However, reference designs intended for seniors that have merit were adequately qualified and considered in their context. Secondly, our team understands the importance of the lived experiences of disabled individuals. With none of our team members being disabled or having disabled relatives, we acknowledged our limited understanding and justified our requirements through interviews with trained professionals who work with disabled people on a regular basis and academic research. Further, we made a conscious attempt at ensuring our language is both respectful and accurate throughout.

## **6. Design Requirements**

This section will look at how our team's position and stakeholder needs were integrated to develop high-level objectives for the opportunity. An overview of the derivation of our detailed objectives with corresponding metrics, constraints and criteria will be illustrated in a flowchart. This will be followed by a table containing all of our requirements and then the necessary justification.

### **6.1 High-Level Objectives**

Through our position coupled with interactions with DANI staff members, we interpret three key higher-level objectives, in order of priority, safety, ergonomics and usability. Currently, Lauren struggles to safely make an ambulation transfer independently. With a non-traditional gait and inadequate support

from the rollator, DANI staff have made it clear that the safety concerns of tipping or falling are essential to any solution. Moreover, the unfortunate reality is that the current landscape of accessibility across numerous fields is predicated on bare-minimum functionality. However, our team acknowledges how ergonomics and comfort are just as important for individuals with and without accessibility concerns. As such, we prioritized ergonomics as one of our higher-level objectives valuing free, independent movement and comfort. Furthermore, what distinguishes existing rollators on the market is that they consider the elderly who just need some support as opposed to a device to put most or all of their weight on. Thus, working with Lauren to consider her specific usability needs such as maneuverability and lateral motion will take precedence in solutions. However, apart from safety certainly being prioritized, usability and ergonomics are deeply intertwined, both being about optimizing for human use; thus, will be considered under similar priority.

## 6.2 Requirements Flow Chart

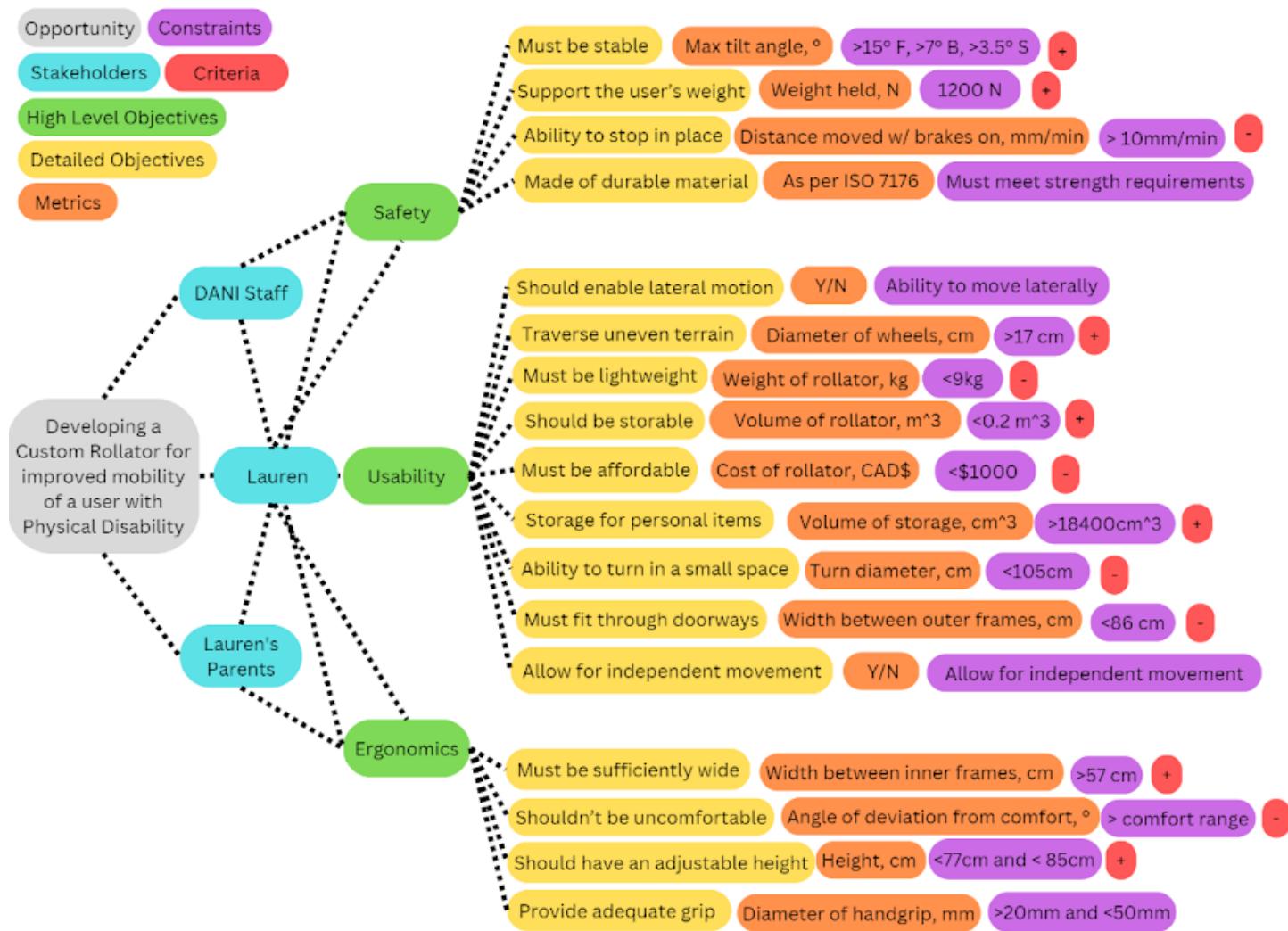


Figure 5: A flowchart illustrating the process of developing requirements to make improvements on Lauren's rollator.

### 6.3 Requirements Table

Objective	Metric	Constraint	Criteria
<b>Safety</b>			
1.1 Must be able to support the user's weight.	Weight the design can hold, in Newtons.	Must be able to withstand a force of 1200N (+/- 24N) [1].	Holding more weight is better.
1.2 Must be stable.	Maximum angle the rollator can be tilted while withstanding a vertical force of 250N (+/- 5N), in degrees [1].	Angle should be $>15^\circ$ (+/-0.5°) when tilted forward, $>7^\circ$ (+/-0.5°) when tilted backwards, and $>3.5^\circ$ (+/-0.5°) when tilted sideways [1].	Greater the angle the better.
1.3 Must be made out of durable material.	Testing protocols outlined in ISO 7176-32 [5].	Must meet all 3 strength requirements outlined in ISO 7176-32 [5].	N/A
1.4 Should be able to be stopped in place.	Distance moved per 1 minute with brakes on, in millimetres/minute on incline described by ISO 11199-2:2021 [1].	Must be less than or equal to 10 mm/minute [1].	Less distance per minute is better.
<b>Ergonomics</b>			
2.1 Use of device shall not force users into an uncomfortable range of motion.	Angle of deviation from comfortable range of motion [Appendix B], in degrees [6].	Angle of deviation should not enter or exceed the comfortable range of motion [Appendix B][6].	Lower the angle, the better.
2.2 Must be sufficiently wide.	Width between inner frames, in centimetres.	Inner frame must be wider than the current rollator, 57 cm. [2].	The wider the inner frame, the better.
2.3 Should have an adjustable height.	Height, in centimetres.	Should have a minimum height of at most 77cm and a maximum height of at least 85cm [2].	Closer to the range, the better.
2.4 Must provide adequate grip to the user.	Diameter of handgrip at widest point, in millimetres.	Diameter must be greater than 20 mm and should be less than 50 mm [1].	Within the range is better.
<b>Usability</b>			
3.1 Must fit through doorways.	Width between outer frames in centimetres.	Width must be less than the width of DANI Magnetic	Thinner is better.

		Campus doors, 86 cm [7].	
3.2 Should enable the user to move independently.	Number of staff members needed for assistance.	Should allow for independent movement, without the aid of DANI staff [Appendix A3].	The fewer staff members the better.
3.3 Should enable lateral motion.	Y/N	Should have the ability to move laterally [Appendix A1].	N/A
3.4 Should be able to turn in a small space.	Turn diameter of device, measured in centimetres [8].	Must be smaller than 105 cm [Appendix B2].	Smaller turn diameter is better.
3.5 Must have storage for personal belongings.	Size of storage space measured in cubic centimetres.	Should have a storage space measuring 20 cm x 46 cm x 20 cm. [2]	Larger storage space is better.
3.6 Must be lightweight.	Weight of the rollator, measured in kilograms.	Should be less than 9 kilograms [2].	Lighter is better.
3.7 Must be affordable.	Cost of rollator in CAD.	Should be less than \$1000 CAD [Appendix A3].	The cheaper the better.
3.8 Must be able to traverse uneven terrain.	Diameter of wheels in centimetres.	Should be greater than 17 centimetres [9].	Larger is better.
3.9 Should be storable.	Volume of the smallest rectangular box which could contain the device, in cubic metres.	Should be smaller than 0.2 cubic metres [10].	Less space occupied is better.

#### 6.4 Justification for Objectives

Objective	Justification
1.1	Supporting the weight of the user is a necessity as our primary stakeholder puts most of her weight on her current walker while using it [Appendix A2]. This is supported by ISO Standard 11199-2:2021 [1]. A new device should be able to withstand this force to offer sufficient support.
1.2	A potential solution must be stable as described by ISO Standard 11199-2:2021 [1]. Stability is also important to prevent accidents from potentially erratic movements as described in an interview with DANI [Appendix A2].
1.3	By the ISO Standard ISO 7176-32:2022, “ no components shall show evidence of failure [and] no parts shall exhibit permanent deformation”. Further, an interview with DANI staff highlighted that participants with a non-traditional, or erratic gait may hit the rollator. This should not affect the integrity of the rollator.

1.4	The device must be able to maintain stationary position to allow the user to safely put their weight on the device when standing up or sitting down [Appendix A3].
2.1	Currently, Lauren is overextending herself due to over-reliance on the rollator for support [Appendix A1]. It is important that users remain within a comfortable range of motion so as to not injure themselves.
2.2	The inner frames of the rollator should be wide enough to accommodate irregular gaits to prevent the user's legs from hitting it while walking. A new design must be wider than the current rollator (57 cm) to be useful [2].
2.3	To allow comfortable use of sinks and full participation in the day program [Appendix A3], the rollator must be able to adjust to the user's height.
2.4	As identified by the DANI staff, current rollators do not provide adequate grip [Appendix A2]. Accordingly, the device must be compliant with ISO 11199-2:2021's handgrip requirements [1].
3.1	Considering the context the rollator is used in, a solution would not permit independent movement unless it could fit through the doors at the DANI Magnetic Campus.
3.2	The current rollator necessitates multiple people to assist with transitions between standing and sitting for Lauren [Appendix A3]. With independence being one of the main goals of all stakeholders, reducing the number of people helping would be beneficial.
3.3	A device should have the ability to move laterally for maneuverability in tight spaces such as bathroom stalls and in between the door and body of a car as described by DANI workers [Appendix A2].
3.4	Justification same as for "Should enable lateral motion." Constraint comes from the dimensions of a bathroom stall at DANI campuses [Appendix A3].
3.5	Users of this device must have places in the cart to put personal belongings that they cannot carry on their person. Current systems suffice for storage as reported by DANI [Appendix A1], so a new device should aim to have similar storage capabilities.
3.6	Lauren's disability results in a lack of strength and reliance on assistive devices [Appendix A3]. Consequently, the device must be lightweight so that it can be comfortably pushed and pulled for movement.
3.7	With high costs related to assistive devices, potential solutions must be a price that Lauren and her family are comfortable paying [Appendix A3].
3.8	Staff at DANI highlighted concerns with Lauren pushing her rollator over the curb cut at DANI [Appendix A2]. The maximum obstacle height of a rollator is determined by 15% of its wheel's diameter [9]. For a curb cut of approximately 1 inch, a constraint of 17 cm diameter was determined.
3.9	A potential device should be storable due to transportation via car or van to different

	locations for DANI activities as described by staff at DANI [Appendix A1]. With an average car trunk holding $0.2\text{m}^3$ , the volume of a rectangular prism covering the entire device should fit that constraint [10].
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## 7. Reference Designs

This section shows existing rollator designs on the market and their strengths and weaknesses that could aid in the future design process.

### 7.1 Carex Folding Trio Rolling Walker 3-Wheeled Rollator (Figure 6) [11]

This rollator represents how a potential solution could implement storability for objective 3.9 in a new design via a folding mechanism. Aside from that, this rollator features a large storage bag, 7-inch diameter wheels, and locking hand brakes. all features that could be of value if the design team so chooses. These aid in objectives 3.5, 3.8, and 1.3 respectively. In addition, the 3-wheel design aids in maneuverability in tight spaces helping to accomplish objective 3.4. However, this design falters in accommodation specifically for our stakeholder Lauren. The rollator does not appear stable enough, it is unaccommodating for her gait, and the height range of 80.7cm to 101.6cm does not fit Lauren, thus failing objectives 1.2, 2.2, and 2.3.



Figure 6: Picture of Carex Folding Trio Rollator and example of functionality of folding to take up less space [11].

### 7.2 Wenzelite CO 2200 Comet Anterior Gait Trainer & Walker (Figure 7) [12]

The Wenzelite Anterior Gait Trainer and Walker is a rollator design created specifically for individuals with disabilities with a non-traditional gait. A key benefit of this design is its focus on maintaining the stability of its user. Namely, through the sufficiently wide base as well as additional attachments that ensure stability while also acting as a trainer for the user's gait. Key features that may be considered in a potential design solution. This design succeeds in objectives 1.2 and 2.2. However, it inhibits maneuverability with the fixed front wheels, is unusable in outdoor environments and does not adequately fold and store. Thus, it does not pass objectives 3.3, 3.5, and 3.8, making it inadequate as a complete solution.



Figure 7: Wenzelite CO 2200 Comet Anterior Gait Trainer and Walker [12].

### **7.3 Shaloly Foldable Upright Walker for Disabled Seniors (Figure 8) [13]**

This design excels in upper body ergonomics as it has supports on which the user can rest their forearms. Currently, Lauren puts a lot of excess strain on her hands and wrists when using her rollator because of the way that she must support her body weight with her hands, which forces them into an uncomfortable position. This design allows the user's wrists to rest in a more comfortable range of motion, most notably in terms of wrist flexion, as per objective 2.1 [see Appendix B1]. However, as with the first design, this design falters in stability (objective 1.2) and maneuverability. With a narrow base and only two wheels, it lacks the ability to move laterally and turn in small spaces (objectives 3.3 and 3.4), which is vital for Lauren to perform simple tasks like going to the bathroom and closing doors behind her. This design also is not nearly wide enough for Lauren's gait (objective 2.2), with inner frames that are only 50 cm apart, which is 7 cm closer narrower than her current rollator [2].



Figure 8: Shaloly Foldable Upright Walker for Disabled Seniors [13].

## **8. Next Steps**

The intention of this request for proposal is to motivate a design to serve the needs and improve the lived experience of Lauren. Through our team's interactions with DANI, we have identified an opportunity to improve Lauren's mobility by developing a custom rollator. We have observed three key objectives for the design of a new rollator such that it would allow her to better participate in the day program at DANI and, consequently, further her ability to socialize and be independent. These three objectives are safety, ergonomics, and usability. These objectives are the basis of the requirements model our team developed (See 6.2). Through stakeholder testimony and secondary research, our team has found there is no current solution that meets the requirements and Lauren's needs. As such, our team believes that these requirements form a basis on which an appropriate design can be developed such that Lauren's lived experience at DANI can be improved.

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## Source Extracts

### Discussion

This study explores the needs of people with a disability who use wheeled mobility devices and those who do not. Needs were substantial among all individuals with a disability, but wheeled mobility device users reported higher levels of met and unmet need. This is of concern, given the growing number of people who use wheeled mobility devices, particularly in the context of an aging population.

According to results of the CSD, the prevalence of unmet needs is higher among people who *already use a wheeled mobility device*, many of whom require an additional device to enable various activities and facilitate access to different environments. Obtaining a manual wheelchair tends to be least problematic, likely because of lower costs and availability through provincial programs and private insurance. An adjustable, lightweight manual wheelchair can have a positive impact on use, caregiver burden, and level of participation, <sup>5</sup> but owing to cost, many people may have only a basic chair. <sup>6</sup> <sup>7</sup> Whether current users' manual wheelchair was optimal, or even satisfactory, is not known.

### Need for improved wheeled mobility devices - Technical Background

[Reinkensmeyer](#)

[Journal of NeuroEngineering and Rehabilitation](#) 9, Article number: 20 (2012) | [Cite this article](#)

36k Accesses | 98 Citations | 2 Altmetric | [Metrics](#)

#### Abstract

Loss of physical mobility makes maximal participation in desired activities more difficult and in the worst case fully prevents participation. This paper surveys recent work in assistive technology to improve mobility for persons with a disability, drawing on examples observed during a tour of academic and industrial research sites in Europe. The underlying theme of this recent work is a more seamless integration of the capabilities of the user and the assistive technology. This improved integration spans diverse technologies, including powered wheelchairs, prosthetic limbs, functional electrical stimulation, and wearable exoskeletons. Improved integration is being accomplished in three ways: 1) improving the assistive technology mechanics; 2) improving the user-technology physical interface; and 3) sharing of control between the user and the technology. We provide an overview of these improvements in user-technology integration and discuss whether such improvements have the potential to be transformative for people with mobility impairments.

#### Introduction

Mobility encompasses an individual's ability to move his or her body within an environment or between environments and the ability to manipulate objects. Collectively, these activities

### Participation in activities for those who use assistive walking devices - Stakeholders

## 16.2 Static strength of the rollator

### 16.2.1 General

The rollator shall be tested in the most adverse condition as described in [Clause 5](#).

### 16.2.2 Requirements for static strength of the rollator

No part of the rollator shall crack or break and the permanent set of the rollator height shall not exceed 1 %.

### 16.2.3 Test method for static strength of the rollator

Measure the rollator height within an accuracy of measurement of  $\pm 2$  mm before and after performing the loading test. The rollator height reduction shall be recorded.

The loading force shall be applied vertically to the rollator as shown in [Figure 10](#). The loading line shall pass through the midpoint of the line joining the rear handgrip reference points of the two handgrips.

A loading force of  $1\ 200\ N \pm 24\ N$  shall be applied for a user mass of  $100\ kg$ . If the maximum user mass specified for the rollator deviates from a user mass of  $100\ kg$ , a force of  $12,0\ N$  per kilogram of user mass  $\pm 2\ %$  shall be applied. The load shall be no less than  $420\ N \pm 8,4\ N$ .

The loading force shall be gradually applied over a minimum period of  $2\ s$  up to maximum force. This maximum force shall be maintained for a minimum of  $1\ min$ .

## Load 1.1 Requirement [ISO 11199-2:2021]

## 15 Static stability

### 15.1 Requirements for static stability

When tested in accordance with the forward-direction stability test ([15.2.2](#)), the angle of the test plane at the point of walking frame tilting shall be not less than  $10,0^\circ$  from the horizontal.

ISO 11199-1:2021(E)

When tested in accordance with the rearward-direction stability test ([15.2.3](#)), the angle of the test plane at the point of walking frame tilting shall be not less than  $7,0^\circ$  from the horizontal.

When tested in accordance with the sideway-direction stability test ([15.2.4](#)), the angle of the test plane at the point of walking frame tilting shall be not less than  $3,5^\circ$  from the horizontal.

It is acknowledged that a reciprocal walking frame cannot meet this sideways stability requirement. Therefore, an analysis of the risks related to the instability shall be assessed by the manufacturer, and appropriate guidance and warnings on limitations for use shall be given. As a minimum the reciprocal walking frame shall meet the stability requirements in its fixed neutral position.

### 15.2 Test method for static stability

#### 15.2.1 General requirement

The walking frame shall be tested in the least stable configuration as described in [Clause 5](#).

#### 15.2.2 Forward-direction static stability test

The forward-direction static stability test shall be performed as follows.

The walking frame shall be placed with its tips and/or wheels on a test plane that can be tilted from the horizontal with the centreline of the hinges parallel to the line joining the tips and/or wheels of the front legs, and at right angles to the normal direction of movement when the walking frame is in use ([Figure 7](#)). The loading force shall be applied vertically to the walking frame. The loading line shall remain vertical and pass through the midpoint of the line joining the front handgrip reference points on the two handgrips.

A static force of  $250\ N \pm 5\ N$  shall be applied. The test plane is tilted and the maximum angle of the test plane at the point of the walking frame tilting is recorded. Accuracy of measurement shall be less than or equal to  $\pm 0,5^\circ$ .

## Stability 1.2 Requirement [ISO 11199-2:2021]

**3.2**

**tyre failure**  
separation of a tyre from the castor wheel or castor wheel axle (in case, the tyre is mounted directly on the axle) or rupture of the inner tube of a pneumatic tyre, where any of these conditions can lead to a loss of function

**3.3****castor stem assembly**

components in a castor stem housing, which includes the castor stem, nuts, washers, stem bearings, or spacers

**3.4****test cycle**

one revolution of the turntable

Note 1 to entry: The fatigue testing machine specified in this document includes a turntable.

**4 Castor assembly classification**

Castor assemblies are classified into three types based on the castor wheel diameter as listed in [Table 1](#).

Table 1 — Castor assembly classification by size

Castor Assembly Type	Castor wheel diameter
Type 1	Less than 75,0 mm
Type 2	Greater than or equal to 75,0 mm and less than 150,0 mm
Type 3	Greater than or equal to 150,0 mm

NOTE Based on their wheel sizes, castors experience fatigue differently. Accordingly, the testing methods in this document are based on the castor wheel diameter.

**5 Strength requirements**

When tested in accordance with [Clause 8](#), a single castor assembly shall meet all of the following requirements at the conclusion of the tests.

- a) No component shall show evidence of failure caused by visible crack, fracture, and/or detachment of a part that could lead to a loss of function.
- b) No component or assembly of parts shall exhibit permanent deformation, free play or loss of adjustment that could lead to a loss of function.
- c) No tyre failure shall occur.

**6 Test apparatus****6.1 Corrosion testing machine**

A corrosion testing machine shall be as specified in ISO 9227 for the neutral salt spray method. Provision shall be made for specimens to be oriented such that their wheel bearing faces are horizontal.

Durability 1.3 Requirement [ISO 7176-32:2022]

Ability to be stopped 1.4 Requirement [ISO 11199-2:2021]

## 6.6.2 Brake effectiveness

### 6.6.2.1 Requirements

This requirement applies to both, parking brakes and running brakes.

The rollator shall not move more than 10 mm in 1 min if the running brake or the parking brake is activated.

The maximum force to apply and release the brakes shall not exceed

- 60 N for pushing forces, and
- 40 N for pulling forces.

Operating device acts on both wheels (central brakes), each of the brake-operating devices shall be tested separately.

### 6.6.2.2 Test method

Place the rollator with its wheels on the test plane specified in [4.6](#). Position the rollator so that a line through the axles of the wheels is parallel  $\pm 3^\circ$  to the axis of tip of the test plane. Apply the loading force vertically to the rollator at the midpoint of the line joining the front handgrip reference points on the two handgrips. For a user mass of 100 kg, the loading force shall be 500 N  $\pm 10$  N. If the maximum user mass specified for the rollator deviates from a user mass of 100 kg, the loading force shall be 5,0 N per kilogram of the maximum user mass  $\pm 2\%$ . The load shall be no less than 175 N  $\pm 3,5$  N.

Activate the brakes by applying the force specified in [Table 3](#) to each of the brake-operating devices along the grip distance. Tilt the test plane to an angle of  $6^\circ +0,5/-0,0$ . Remove the stoppers. The friction between the braking wheels and the top surface of the plane shall be such that the wheels do not slide. Leave the rollator for 1 min. If the wheels turn, the rollator shall not move more than 10 mm in 1 min.

Repeat the procedure with the rollator facing uphill as in [Figure 8](#).

Ultimately, the workplace should be comfortable for users and adapt to their needs as much as possible. Workplace products designed with this in mind can lead to higher worker productivity and lower risk of injury and illnesses.

The human body has a natural range of motion (ROM). Movement within the proper ROM promotes blood circulation and flexibility which could lead to more comfort and higher productivity. Despite the need to promote motion, users should try to avoid repetitive movements and certain extremes in their ROM over long periods of time.

By considering both ROM and repetitive motion, products can be designed to operate within the optimal ranges to help reduce the occurrence of fatigue and muscle disorders.

### Good and Bad Zones

There are 4 different zones that a user might encounter while sitting or standing:

- Zone 0 (Green Zone) Preferred zone for most movements. Puts minimal stress on muscles and joints.
- Zone 1 (Yellow Zone) Preferred zone for most movements. Puts minimal stress on muscles and joints.
- Zone 2 (Red Zone) More extreme position for limbs, puts greater strain on muscles and joints.
- Zone 3 (Beyond Red Zone) Most extreme positions for limbs, should be avoided if possible, especially with heavy lifting or repetitive tasks.

These zones are ranges where body limbs can move freely.

Zones 0 and 1 include smaller joint movements, while Zones 2 and 3 represent more extreme positions.

**Range of Motion Requirement 2.1 (See Appendix B3 for chart)**

	<b>Mini</b>	<b>Reg.</b>	<b>Tall</b>
<b>Seat Height</b>	18"	21"	24"
<b>Seat Width</b>	18"	18"	18"
<b>Width x Length</b>	22.5" x 26"	22.5" x 26"	22.5" x 26"
<b>Handle Height</b>	30.5" - 33.5"	30.5" - 34.5"	33.5" - 40"
<b>Weight Capacity</b>	300 lbs	300 lbs	350 lbs

Requirements 2.2, 2.3, 3.5, 3.6 (Measurements of Lauren's Current Rollator)

## 6.7 Handgrip

**The handgrip width shall be no less than 20 mm and not more than 50 mm. This shall be checked by measurement.**

**NOTE** This requirement is not applicable to anatomic handgrips.

**The handgrip shall be securely fixed to the handle of the rollator.**

### Handgrip 2.4 Requirement [ISO 11199-2:2021]

Doorways and Doors

**(1) Every doorway that is located in a barrier-free path of travel shall have a clear width of not less than 860 mm when the door is in the open position.**

**(2) Except as provided in Sentence 3.3.4.11.(11) and except where no bathroom within the suite is at the level of the suite entrance door to which a barrier-free path of travel is provided in accordance with Sentence 3.8.2.1.(1), the doorway to at least one bathroom and to each bedroom at the same level as such bathroom within a suite of residential occupancy shall have, when the door is in the open position, a clear width of not less than,**

- (a) 760 mm where the door is served by a corridor or space not less than 1 060 mm wide, and
- (b) 810 mm where the door is served by a corridor or space less than 1 060 mm wide.

**Fitting Through Doors 3.1 Requirement [Article 3.8.3.3 Ontario Regulation 332/12 Building Code]**

# Earth-moving machinery — Determination of turning dimensions of wheeled machines

ISO 7457:1997(E)

© ISO

## 1 Scope

This International Standard specifies methods for determining the turning radius, turning diameter, machine clearance diameter, and inside and outside tyre clearance diameters, described in the horizontal plan by a wheeled earth-moving machine with its equipment and attachments when executing a turn.

This International Standard is applicable to all types of steerable wheeled earth-moving machinery. It is applicable irrespective of the type of steering used.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5010:1992, Earth-moving machinery — Rubber-tyred machines — Steering requirements.

ISO 6165:1997, Earth-moving machinery — Basic types — Vocabulary.

ISO 9248:1992, Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies.

## 3 Definitions

For the purposes of this International Standard, the definitions given in ISO 6165 and the following apply.

**3.1 turning centre:** Point about which all turns of constant radius are made. (See figure 1.)

**3.2 turning diameter:** Diameter of the circular path described by the centre of tyre contact with the surface of the test site of the wheel describing the largest circle when the machine is executing its sharpest practicable turn under the test conditions described in clause 7, or by calculation for skid steer loaders. (See figure 1.)

**3.3 turning radius:** Half the turning diameter (as defined in 3.2). (See figure 1.)

**3.4 machine clearance diameter:** Diameter of the smallest circle which will enclose the outermost points of projection of the machine and its equipment and attachments when it executes its sharpest practicable turn, under the conditions described in clause 7, or by calculation for skid steer loaders. (See figure 1.)

NOTE — As the machine clearance diameter is affected by the type of equipment and attachments fitted, the latter should be stated in the test report.

**3.5 outer and inner tyre clearance diameter:** Diameter of the circular path described by the outermost point of the loaded (lower) section of the tyre located on the vertical diameter of the outermost wheel and also that of the innermost point of the innermost wheel when the machine is executing its sharpest practical turn under the conditions described in clause 7. (See figures 1 and 2.)

See clause 6 for the state of loading of the machine.

**3.6 non-stop 180° turn width:** Minimum road width required for the tyre paths of the machine as it makes a 180° turn without stopping. (See figure 3.)

## 4 Test area

The test area shall be a compacted or paved surface affording good tyre adhesion, capable of displaying legible markings and resistant to defacement by turning machines. The test surface shall be visually flat, with no more than 3 % grade in any direction. The test area shall be large enough to accommodate the test machine as it negotiates the appropriate tests.

## 5 Test equipment

The following equipment or its equivalent shall be provided.

**5.1 Steel tape:** readable to 1 cm and of greater length than the diameter (or radii) to be measured.

**5.2 Plumb line:** as required in the measurement of clearance diameter (or radii).

**5.3 Apparatus for the measurement of pedal effort:** as required for the execution of the test.

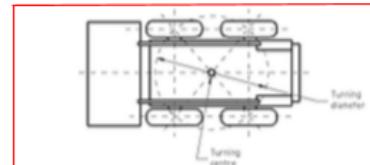


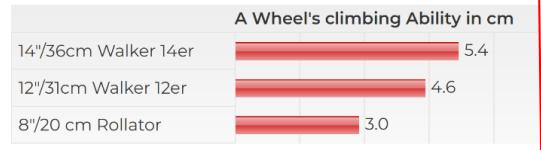
Figure 1 — Turning and related diameters

## Turning Radius 3.4 Requirement [ISO 7457:1997]

### The Capacity of a Wheel

The maximum obstacle height that a wheel of a given size can climb when pushed, corresponds to 15% of the wheel's outer diameter. Conventional rollator usually have only 8"/20 cm small wheels that only manage 3 cm high obstacles (requires considerable force). In the right diagram you can see the maximum obstacle height that the wheel sizes 8", 12" and 14" can manage when being pushed.

A Rollator Wheel's Climbing Ability Compared to a conventional Rollator



## Maximum Obstacle Height of a Rollator Wheel Requirement 3.8

Optimum trunk capacity depends on individual needs. The number of people travelling in the car and the type of luggage most often carried are of major importance. Generally the size of a trunk depends on the class of car and its dimensions. A small city car can hold 200-300 litres, enough for a single person who wants to carry a suitcase or shopping. When buying a C-class model, you can count on more space, i.e. from 500 litres upwards. This parameter is the minimum necessary for a family of 4-5 people going on vacation. It is worth remembering, however, that not every such family car can accommodate a baby stroller.

#### Storage of Rollator Requirement 3.10

## **Appendix A - Interactions with DANI**

### **A1 - In-Person Introductory Meeting**

Group Member 1 0:00

from both the CEO and the program's director, what do you guys think of the day program? What what you think it is and how it furthers the goals of the organization specifically to learn more about

Program Director 0:11

Okay? Okay, so the, the so what we kind of started is our day program is persons first and foremost, we really aspire to be person centered. So what that means in our contact is that we really try to match the activities, and you know, the learning and the opportunities that we do to people's personal goals. So if somebody comes to us, and they say, Hey, I really want to be out in the community more, and I really want to, you know, I'm an extrovert I really want to express, so maybe we get involved in the play, and we get them, you know, out at the food bank, you know, meeting where there's a lot of other people working, and they get to make some relationships there, contribute to the community, whereas somebody else may be, hey, I really want to improve my literacy skills. So therefore, we put them in the newsletter group, where they're helping us publisher newsletter, and, you know, working on some of those kinds of personal goals. We have what we call kind of a jigsaw schedule. So in traditional deprogramming, often, there's, you know, two or three staff and they're put with seven or eight people that come to the service, and they stay together all days, okay, hey, guys had to go to the part of the guide, it's time to do our everybody, let's go to the community center together. So we're a little bit different and ambitious, in that we have three or four activities going on at once. So depending on the groups kind of interchange, so. So like, if you came to program at 10 o'clock, you might be with her each, and you guys are doing art together. But then at 11 o'clock, you're doing the newsletter with Group Member 2, Group Member 3, okay, Group Member 2 was doing with Group Member 2, but Group Member 1, is working with Group Member 3, and they're going out to play basketball or something. And then there's two outings in the afternoon, and some people go to the food bank, and some people are going to an animal shelter, right, so So, so our program is a little more ambitious that way, and that we kind of have a jigsaw schedule, it is a structured schedule. So meaning that every Monday is the same every Tuesday is the same, you know, people aren't choosing their activities daily, but they have lots of input into what their schedule is going to be. So over time, you'd be like, Hey, you don't want at the food bank is not working for me anymore. You sit down with us we look at okay, well, maybe we'll try to switch over here. But that's not sort of a daily thing, right? We have a ratio of about two and a half, one staff for two and a half to three participants.

That's augmented somewhat by we have lots of relationships with colleges and universities, that placement students here. So they help quite a bit, we also have some volunteers that come in, and this was, for example, we need to hire tend to need a higher ratio to be successful out in the community. So whereas you saw that music program, you know, kind of get away with, you know, that one to three ratio. But if we're having a community and we're at the food bank, you know, people do need more support. So, so that's been we utilize a lot of volunteers and students to increase our ratio so that people can have more support, you know, when the tasks are a little bit more demanding. As house that very much, we always, you know, even with our arts program, you sort of saw, we really, there's a community payoff at the end, right, so they're not just doing it in isolation, they're doing it so that we can share it with the community, they're doing the play, we can share with communities during the art, we can auction it off to the community and display it to the to the community, fill in the gaps there.

COO 3:45

Um, yeah, just the way we the way we develop the goals for each participant is through there is a process of goal action plan. And there is if you want, I can, so there are some things that I can let you have. If you want, I can send you how the goal action plan looks like for each participant. I can also give you a template of how our schedule looks like because how Program Director said that we have a few activities at a time and it's kind of like all makes sense. But it does work. So I want to maybe let you have kind of, you know, a snapshot of how a week looks like yeah, I don't know I want to just mention also it's a holistic program in the sense that you know, we have different components. So just to understand it's part of like, it's intentional that we have physical activities, we have music and art we have work placement in the community, we have literacy we have even spiritual enhancement activities. Everyone regardless of their goals will get some of each, okay, their focus will be on certain things, but everyone gets at least some of everything. Okay, so just so you know, like, even if my goal is to be I don't know, to, to work on my vocational skills, I will still do some dance and I will still do art and I will still learn about I don't know, science, whatever. Okay, so and also strength based. So when someone comes to us, first thing we want to know is what they are good at what they like to do. And not what is their challenge. Also, we are not a clinical program. So, again, our focus on is on developing skills and engagement and all those things, but we're not here to know if someone really needs like, some therapy. This is not the program. Okay, so it's more of a community based rather than clinical. So just to put it in the right, you know, to understand how we go about things. Yeah, I don't know, we serve hot lunch everyday here that we make, that we make that the kitchen clerk. We're going to, yeah. So everybody's well fed, I guess. Yeah. I don't know. So yeah, ask us questions. I think this is a pretty,

Program Director 6:43

I mean, I mean, it would help us to, you know, we were always kind of wondering, you know, trying to improve, like the website and stuff and just just, you know, wondering what we need to communicate to people. So it does help, right, you guys are a great opportunity for us. This is what we took from that is what we don't know, right? So what what are, what kind of information do you think is kind of missing from the website? Or what we've told you?

COO 7:05

And even if you want to, I mean, if you want to answer now, it's great. But even for later, if you guys want to take another look at the website, that's something on the side that could help us is getting some feedback from you guys of what is, you know, what do you actually learn from the website, and maybe they're important things that you heard today that you think should have been put out there.

Program Director 7:33

We're pretty as an agency, we're pretty young. So we're about 1516 year old at an agency, which is really young, very young in the life of an agency. So there are places that serve as adults with disabilities, like the medical center and arena that have been around much more decades than we have. So we're kind of at this precipice where we're like, getting to be a bit of a bigger agency, and we're trying to be more professional and write our website, and, you know, the way we communicate to the community and stuff like that, so we're just kind of learning to so we're just, you know, we're, you know, just kind of, you know, going through some growing pains, getting bigger, just trying to figure it all right.

COO 8:13

Historically, then he was this established and created by two mothers of children with disabilities that turned 21. In Ontario, the government, the public educational system, is required to service people with disabilities up until they're 21. And then there is what we call like in the community, a cliff, because basically, they're, usually you come to age 21. And then there is like, pretty much nothing out there. So that's the initial kind of motivation for those mothers to create Danny. And for Yeah, we were kind of like a mom and pop shop for a while. And I would say in the last like, six, seven years, as we started doing more than social enterprises, we grew growing numbers growing services. Now we're even created a sister entity called Danny's place, which is a housing like a residential services focused, which is a big, big deal. If I said that social isolation is one big thing. Unemployment is another thing. Housing is a huge problem for our our clientele, especially considering that they are themselves getting into their 30s and 40s. Their parents are getting into their 60s and 70s. And where are they going to be who is taking care of

them? What's going to happen when their parents are really unable? It's a huge concern. waitlists Um, if you want to get housing through the government, waitlist can be decades, literally. So people can like die before they even got to the, you know, get to first deadline on the waitlist. And yeah, we have like situations where people because there's no proper housing solutions, people are being put in like mental health wards or, you know, senior homes, whatever, like, you know, but it's inappropriate. It's not what it's not meant for them,

Program Director 10:36

even sometimes pulled out of their communities where they might be right beside brewery. And they particularly have conditioners, just because there is a bed for the whole community. But there's a, there's a space there.

COO 10:45

Yeah. So it's very important for us to be in the community, for the community, and also the housing. So there is one house that we are building now. It's a beautiful project. And I can also give you more, if you want me to send you, for example, our like information package for the house, just so you know what we're doing. And, again, we wanted to make sure that the house is in the neighborhood we didn't want, it's easier and cheaper to go to some, you know, rural area and get some land. But no, we want our people to stay close to their roots, basically where they grew up and where they know everybody, right? Yeah, so I'm just saying how we are evolving pretty rapidly. Within the 15 years from basically seven participants and two staff. One of them was me, I had no idea what I was doing. To today where we are professional, and we really serve a lot of people. And yeah, we're trying to grow. And

Group Member 3 12:05

so would you say your focus is more so shifting towards housing, as well, like as like, it's like pretty equal, like in kind of your scope of what you want to do.

COO 12:14

Hopefully, that's just, I mean, it's not the agency, I think, potentially the housing is actually a greater need, just because of, but did they it doesn't mean, it's not either, or it's not a competitive issue. We'll see how that goes. At this point, most of our budget and efforts are at the programming side of things

Program Director 12:43

I was would it be fair to say, like, expand, our focus is expanding to rather than shifting,

COO 12:48

expanding? Exactly, we're not shifting

Program Director 12:51

the focus on the things that we're we're doing. But just we're kind of like, okay, broadening it now, to okay, we've also got to focus on,

COO 12:59

and because it's very experimental, it's our first, you know, attempt at this. And this is one of the reasons why we had, we decided to create a new entity that is place, just even for a legal or, you know, if there is one issue with one won't necessarily affect the other, like, if the housing for some reason, something happens, it doesn't necessarily affect. So, yeah, we're just it's an add on. But I think that that add on can and should have a life of its own and grow. So for now, it's our first house and it's still not occupied, it should be done in hopefully June, and get people in, in the summertime and see how that goes.

Group Member 3 13:53

This is a place where you have like housing and a place like this, like, where you have programs

COO 13:58

know this? Well, the house will be a house for people to reside, there will be some support. And that's the main purpose. But again, because we have the same mindset of social engagement, and generally develop people's skills, so there should be programming. There should be extra things for the people who live in the house, but it's mostly, you know, as a long term solution, and on its own, it's extremely valuable for the families and the participants that do get it. So it'll be eight residents in this project.

Group Member 1 14:46

You talked about how like a big focus is on community and also generally how interconnected the whole organization is. So with working with the community, do you have specific partnerships with different other organizations or how does that

COO 14:59

work? I'm so we have a lot of connections and partners in the community, especially places where we go to volunteer and work. So if it's food banks, there is a farm that we partnered with. There is

Program Director 15:20

life. So this city of Vaughan libraries we partner with, we partner with community associate. So a lot of other not for profits as well. Right that we can contribute. So, Community Association providing for disabled we partner with Toronto wildlife. If you want, like do you want to create,

like, you want some examples? Or do you want to like yeah, what would help you in terms of the the definitely answer is yes, we have a ton of partnerships. I mean, we're also, you know, actively seeking more partnerships. So often we've been in the past, and we're looking to future partnership with the Thornhill hub, which is an employment agency. So there are different kinds of partnerships. So there's partnerships that help us get vocational placements. There's interagency partnership just with projects that we might do. So we might work together with another agency. And this is something we were aspiring to do more but to partner with another social service agency, intimate partner and deliver a particular service. There is. Yeah, I mean, other like nonprofits, yeah, other nonprofits there's,

COO 16:38

I'm sure they're in AI.

Group Member 3 16:40

How do you go about like reaching out to people? Is it just an email? Or is it is it a portal or?

COO 16:48

Ah, ah, each partner, I guess, has their own story of how we got to that partnerships, partnership, usually a phone call or an email, I guess, that's usually how it starts. For the most part, we reach out, but there hasn't been occasions where we were reached out.

Program Director 17:10

By, I find, I find just in general, it does help to have a human gatekeeper. So often, it's, you know, one of our parents know, somebody that think might be willing to do it. So it's, you know, they're definitely some examples of just a cold call or cold email. Where Okay, so So yeah, sure. But a lot of the times, it's, you know, people that already have your, they're sort of qualified and identified as knowing somebody has a vested interest in getting involved with us, and, you know, making their, you know, their place more diverse, or they they themselves have, you know, brother or sister or child with a disability. And I think this is good stuff. I want to get involved with this. So it helps don't, there are definitely examples of when we just call up and say, oh, yeah, that sounds a great idea. Come on, in, or, or, you know, often it's like, somehow they kind of come to us already with the desire to work with us.

Group Member 1 18:07

I think another thing we were just curious about is how you, you talked about how with the social enterprises, you don't want just teach skills, but you want them to use these skills, specifically, and I was wondering how that relates to the community like with? Do you work with other

organizations for jobs specifically? And things like that? Or is it mainly volunteering, or with the program?

COO 18:29

For the social enterprise? I mean, first of all, there is a big chunk of the work for the social enterprises done by volunteers from the community. So usually senior ladies, I would say, retired ladies, that are kind of a social group that we adopted, I guess. So they come in, and they do a lot of the work with us. So sorry, you meant like with the social enterprises part of partnering with others,

Group Member 1 19:03

no, like, specifically, I just wanted to, like give an example of how you want to find work with these people with the social enterprises, but like do work with other organizations in the community separately to find

COO 19:14

where to find work. So interesting. So there, there is two things. One is the vocational training, okay, this is just working on the skills unpaid. This is something that we usually go with other nonprofits. Okay. So that that is the type of partnerships that we have with nonprofits, usually for volunteer and training purposes. And when it comes to collaboration with businesses and for profits, then yeah, we do have but it's a bit tricky, because it's really there needs to be a real cut. commitment by the employer because they need to pay. And they need to ensure the participants to make sure that they're under the insurance of that workplace. And

Program Director 20:12

so there was some legislation that got passed about three or four years ago, maybe even longer now. And it just kind of changed the dynamic a little bit, because what they sort of said in the legislation is you can no longer have people with disabilities, just volunteering forever, and doing work. Now, the good part of that is that there were probably people with disabilities, because they had a disability or being taken advantage of. So they're saying, hey, you know, what, we're gonna give you a box of cookies, every couple of times you come in, and you're gonna come in and package this amount for us, right? So now the law is, is that if somebody's coming into work, you have to pay them, you know, you just you just have to, if it's a for profit, if it's a for profit, right, because if it's poor profit work, then you know, you, there really is no such thing as volunteering, right? Now, at least not what you can do for a finite amount of time on your training aspect. But longer, but long term, you can't do it, the sort of downside to a little bit is that there were some opportunities we were taking advantage of, as part of our vocational training, we would come once a week, and you know, and we would do a certain amount of work, it probably wasn't enough to pay everybody minimum

wage, it wouldn't make sense. So we can no longer do those kinds of things. Unless, like Kyle said, there's a real commitment that, okay, these people really fit this job. And with some training, they're going to be enough that the employer is going to be comfortable to pay them. Which is why for the most part, especially the last four or five years, we're working mostly with not for profits, and doing some volunteer, I mean, just giving back to the community as part of that community engagement piece.

COO 21:54

Yeah. And having said that, it is true that strategically, we are now really looking to push the boundaries on getting our foot in the door in for profit, you know, work settings, placements, where we can hopefully get more people hired. That's, that's a goal. And we're looking at different ways how to go about it. And one of those is, like Program Director said to partner with the Thor noodle hub, which is an agency that is to call like, men power, how do they how do you call their employment employment agency, so they have connections already with employers who are looking for work, we have people who are in for work, and hopefully we can find ways to, you know, create a win win situation?

Group Member 1 22:53

Yeah, so that's a lot about the day program. And similarly, like, how we were going over some, like that specific individual with the walker, we were wondering if you had any specific issues like this through the day program, and through the activities that you guys do through there.

Program Director 23:13

So And what's this kind of scope of so you so you're all kind of engineering and you haven't really specialize yet? Is that sort of fair to say, Okay. Because there's like, would that go into software? Would that go into at this point, what do you think the scope of what you could help with would be

Group Member 1 23:36

so for software, something like that was something that we considered separately, but our instructors decided that that wouldn't be the best solution or the best opportunity for us to work with because like, let's say you're this gets chosen as one of the main eight then you have like, eight people making an app or a people making a website and things like that they didn't want to have like the same solution. So likely it would be more something related to a physical or like a tangible solution. Right. Okay.

COO 24:05

I really liked the idea of helping with the transportation the yeah getting in and out of the vans. I think let's see if we can invent something amazing.

Do you have a van here that you use? Yeah, we have sorry. Yeah, we have used three vans we have

Program Director 24:23

excellent four one and one kind of looks like a wheel trans but when accessible boss with a wheelchair that probably the solution probably more for the vans. Well, the bus has around the bus. So yeah, because we could definitely I think takes pictures of vans. So we could pull them around or we could take you back to things and so so yeah, and I Listen, we could we could definitely. So we have these two campuses, right? So, like I just briefly chatted with Magnetic Campus Director, who's the magnetic campus director, I could definitely go back to the team at Clark Campus to and see if they had a few ideas. What is your like? Do you need to kind of leave here with a couple of ideas? Or do we need to, you know, we have a little bit of time to think about it. What, what sort of your pleasure zone you're working around?

Group Member 2 25:30

I think that within like, the next week, you're probably like, yeah, don't feel.

Program Director 25:36

So what did we leave with that? That's one for sure. Yeah, for sure. We can walk out. And then what if there are some additional or expansion of those ideas, and the next few days, we just keep pumping you with them, and you guys can kind of, you know, help us decide what you want, you know, what you might want to put forward?

Group Member 1 25:56

Yeah, just in the, like you said, in the next few days, we have, like, our own internal deadlines. And so like picking the specific opportunity that we choose to go forward with, and also like, if you're able to see what both campuses different issues, like we'd like to see, like, change that can help more people. So like, if you have any other solutions to that that would be?

Program Director 26:20

So that would definitely be a like, so for example, would you have at the other campus? There? Definitely, we have two individuals, one that kind of uses both a walker in a wheelchair, and NW who's always complaining about anxiety about transferring back and forth. So there's two individuals, the upper campus as well, that are, you know, using the van sometimes, and,

you know, we're experiencing some anxiety and some, you know, unstable illness with what's going on. So that's a good one. And we can also,

COO 26:56

I mean, but honestly, like, if you are this type of device, to enable people to easily go in and out of fans. as huge as like, whatever if we have three, they're like, I don't know, 3 million people in Canada music, or something? I don't know. But you know, Richard, so yeah, we get how much percent? Yeah.

Group Member 3 27:28

I guess going like back to like this campus, so you have the kitchen, you have the gym, you have art and music? Is there any particular area where people cannot do everything? Like are not accessible to do everything?

Program Director 27:46

So the bathrooms, but I don't know if that's something you guys want to tackle? There is? I mean, we do we're looking, in general, we're looking for some grants to redo our bathroom for people that use wheelchairs. Right,

COO 28:05

but I don't know, are you asking about spaces that we want to look at?

Group Member 3 28:10

Or rather, like, just people like participating in the activities? Like,

Group Member 1 28:13

are they able to participate? Any difficulties they would have in participation?

COO 28:20

I mean, depends on the activity is, I don't know that we have a situation where someone is really into something and we can't provide them with, like activities around whatever they like. Everyone is different. I don't know that everyone is different than they they have their own. You know, I guess challenges. And

Program Director 28:52

so you mean, like, I'm just trying to think of some examples. So like, if somebody is in a wheelchair, and they want to participate in the art program, that sometimes they have their own tray, sometimes we want them to be at the table, but they just the height of the table and the chair. There could be stuff like that. I wonder if we ask the staff if they're running into a particular? I mean, we can I think I think it's worth asking. So challenges, Helen, I don't more are behind the scenes supporting the style. You know, we were, you know, it's not as fresh for

us to say, you know, so I really want to, I think I think it's worth it to at least ask the staff if there's a couple of things like that. Because isn't one and is it? Are you looking for a bunch of ideas and then really choose one? Or could there be like during the window of helping Danny be accessible and you would tackle two or three things is how do you see that working? So say there was something like that and they like okay, we need something that we can put on the table. so that, you know, this person can now access what they're doing in a much more comfortable way and a much more stable way. And there's a bad thing, would you have to choose one? Or could that kind of go under the umbrella of we're helping out Danny accessibility? And there could be two, you know, two projects that are different, but both do but both do mostly wants to, like have one specific that's just the nature of the request for proposals for like, just once. Yeah. Okay. So, so I really liked the idea too, but what we could do is you know, if you pencil that in we can we can pull everybody and use somebody may put their hand up and said, wait a sec, guys. That's great. But what we need even more is this. I just don't have that. That this right now. Okay, so we can definitely work with our staff who are quite creative. We have a Lana who's an OT who might have I would I would want to run this by her. So she like we said, she's actually a qualified OT, she doesn't practice occupational therapy yet. But she's going to associate her she's a little bit probably like you guys more a little more science minded than we are and she would look at look at things that way too. So

COO 31:01

yeah, I mean, we have the whole snoezelen room right that's very trying to create so I suppose living room is basically a sensory room so it's usually would be used for people to relax and calm down. There will be like lights and visuals or sounds and materials that are calming and comfortable. So maybe some work around this there's no so we don't have a proper snoezelen room in this facility and that could be something just to design but I don't know how unique it would be if I don't know if for your purposes seems like you would be best to like find one thing that you want to create so there's no zero I'm just saying it's a bit of a general thing right like says knows everyone can look this way can look that way. But it is something

Program Director 32:20

something Okay, so what what if in terms of a plan if we penciled in the van thing and then we pull the staff as much as we can and just from getting it from my colleagues get any other ideas and send them to you guys a shot just in case something's like wait a second. Yeah, this is great. But wow, you're agreeing this is even better. And then kind of go from there. Yeah, that was

COO 33:04

amazing. And I said I'll send your goal action plan template and the schedule like a snapshot of the week so you can have an idea anything else they sent it will send you if you if you remember if you'll tell me. I think it was just Yeah, okay, pretty sure. Yeah. Okay. And you wanted to see the vans? Yeah, let's go you guys don't like cookie you got it?

Team Lead 0:00

Wow,

Magnetic Campus Director 0:01

I thought Tom was leaving, and everybody was leaving and was like, Oh, my God, are you on a three? Yeah.

Team Lead 0:15

Awesome. Okay, so I'm just trying to figure out like, the purpose of your visit. What?

Group Member 1 0:28

So basically for in our program, we have a project where we have to work with the community to develop a specific opportunity, that is something that they need to address something that can be an area of improvement for that specific community. And so we thought that Danny aligned with our own values, and we thought that it would be an interesting community to work with anyways. And so yeah, we were looking for specific opportunities and areas of improvement. And Program Director mentioned, the getting into the truck. And so that's one thing. But obviously, if you have any more ideas, we'd love to

Program Director 1:02

hear, actually, sorry, it's very important to know is what they're offering. And then there's a process that they described where the right now there's about 70 groups, and they're all going to make a proposal and then u of t is going to pick eight or 10 that they really like to be able to continue to follow through and then they're going to re disperse that projects amongst the group. So there'll be like a groups working on it. So there'd be anything to notice for bigger project. It's, it's what they're able to provide, is the design labor, not necessarily materials, and, and that, if we need to knock down a wall, we'd still have to get a contractor. Yeah, right. So so just to sort of keep keep that context, right.

Group Member 4 1:45

So our request for proposal it was selected, there would be like eight 910, whatever teams working on that opportunity that we did the request for proposal on and then making a 10 different designs or solutions for that.

Group Member 1 1:59

So it could just be like a design, but also, a lot of they our instructors really encouraged us to make physical prototypes whether or not that's something that is specifically used, that's one thing, but having these like physical prototypes is definitely something.

Magnetic Campus Director 2:15

So I really liked the idea of going with that one participant, Lauren, because it's not just getting in the car, it's possibly something that can be multipurpose, where for her, so she has a walker, but for her to get from the table to push herself back to get into the walker, she needs staff support to get from her walker into the chair, she needs extra support again. So really, she does need a law that balanced life support. So getting into cars, up in, like in and out of chairs, is something that can allow her to be more independent, that there probably is a few different things also, like just with her walker in general, she walks in a way there a feeder like this, and there aren't any walkers made to actually allow for that range of motion. So we find that her feet are actually getting stuck with her walker, when she's trying to take a step back, or trying to turn, the actual Walker itself gets in her way. That it would be something when we're looking at a device to help her with the car or to stand up or stand down. Just also looking at her range of motion and movement, because it wouldn't be a standard prototype of what's already out there.

Team Lead 3:39

So can I add to Walker, okay, so transfers are definitely something that would be helpful. But for her walker, a few things we encounter, as Magnetic Campus Director was saying. So she puts a lot of weight on her left side, which means she's putting pressure on the left side. So her walker is actually not wheeling on that side. The other thing is because it's a standard Walker, it doesn't allow for a wider gait because her feet go out like this. So she kind of bumps into it a bunch and they have walkers with which have like a wide radius, but it's for a reverse gait, which is not something that's for her. So she kind of need one with a front wide area, but still fitting through doors, and also padding because we have lines all across our walls. Which would it be helpful because then we can actually play bumper cars

Program Director 4:35

which would actually make her much more independent. Because right now because she's crashing in and there's a little bit of a property damage consequence, somebody has to be with her and hindering her independence right so

Team Lead 4:48

so that would just be like to provide some wider space for her feet because her gait is not standard.

Group Member 3 4:58

So she uses she uses it Wheelchair and Walker,

Team Lead 5:00

she uses her walker she uses her wheelchair when we have to go, let's say to the mall, then would then she's in her wheelchair the whole time. She can't, she can't walk like distances, but she can walk, you know, from her chair to the bathroom.

Group Member 3 5:15

What does it transfer currently look like right now?

Magnetic Campus Director 5:17

So can you show

me? Okay,

Team Lead 5:22

so she's sitting in a chair, okay, her chairs have to have arms just Yeah, give her more balanced control. Yeah, she can push up. But then you know, when she's leaning, she can't really wait there a whole lot. So we just make sure that we push either a chair directly, like behind her legs.

Magnetic Campus Director 5:45

Or we grab her under the arm and transfer, like push, like, yeah, we have to put her there bring something towards her.

Team Lead 5:54

Then to get in the car, I'm gonna stand on the chair for a second, okay, because to get in the car, she does an entire leg turn, I can't even do it. But her whole leg faces the wrong way. Because our wishes to get in the car to pivot from her chair to the seat. And that's where we're concerned because the body shouldn't move that way.

Magnetic Campus Director 6:19

She also has to use the door to get herself. So if we're pushing her in the wheelchair, the walker, we have to remove, say the walker, if this is the car, we have to remove the walker away from her, but she can't see it on her own. So she's holding the door, that if we're not also holding the door open while removing the walker, she would close the door on herself. So there's nothing to help her there. Because then to get into the car, she'll grab the bar on the top to help pull herself in, but she's still holding on to the door that's trying to close on her.

Program Director 6:54

So when we saw the car, it opened the door. And you can see there's a handle here. And then even if she were to put that as very unsafe or to put that in the handle, because that's a sliding door just

Magnetic Campus Director 7:04

so with the wheelchair, it's a bit easier if you're not moving the wheelchair from in front of her. But to move it away from behind her, she's still holding the door, you're trying to keep it open, undo the brakes of the wheelchair and roll it back and hope that she doesn't fall or anything at the same time. There's just like a lot of devices that staff are trying to multitask, to make sure she stay safe.

Team Lead 7:32

It takes two people to get her into them safely. Yeah, like we

Magnetic Campus Director 7:36

do with one but nobody likes nobody feels comfortable doing it.

COO 7:41

Would it be helpful if next week, we have a video of that process. So you can see how it actually looks like?

Group Member 1 7:49

Yeah, this opportunity definitely will be very, very helpful. So

COO 7:52

let's ask

Magnetic Campus Director 7:56

Uber even, we can pick the last the parents,

COO 7:58

let's just ask the parents, we can even just do a one off just for the purpose of showing the process. Okay, so just like get permission, and we'll do it. We can also

Team Lead 8:08

if they give us permission for that we can also take video of her transfers. So you can see that as well, if anything like Sparkster.

Magnetic Campus Director 8:19

Just another thing. Also regarding Lauren's foot, Lauren applies to a few of the other ones. And just if you guys need a broader area to cover for a project rather than for like an individual person. So we don't have handicap bathrooms. But regardless, so we have Lauren and to one other participant who sometimes uses a walker, that when they go into the

washroom, they can turn but then again, they're walkers in front of them, and they can't close the door in front. So is there a way to have a mechanism that once they're sitting, they can push the button to close the door for them? Because other places they have strings or magnets or different things, but even if we did have the handicap stall unless it was fully electronic that would be a whole new contracting type thing that is there something we can create to allow people to go to the washroom and just press a button or is there like a string with a magnet that can close the door shut? Because to open it, they can push with their Walker to open it. But there's no way of closing the door

Team Lead 9:31

right now. It's just your standard Stalder Yeah, like school solid wood it is just

Magnetic Campus Director 9:39

that that's something that can also really help because right now we have staff going to the washroom and holding the door shut. Not because she needs help in the bathroom, but because

Program Director 9:49

she's just practicing yeah being able to to

Magnetic Campus Director 9:54

but for her to feel just better about herself to not have to have people standing there and waiting in the bath From with her, and that would apply to probably a few participants at some point.

Group Member 3 10:12

Not particularly with Lauren, Is there anywhere else like in your work that where you see people that kind of struggle with independence in the same kind of situations? Like is there any other situation where,

Group Member 1 10:22

or with activities specifically for the day program or, for example, any specific activities, they're actually we're putting you on the spot.

Team Lead 10:34

Really quickly, I'm going through programs

COO 10:36

are given even eating even food prep. By the way, it's fine if we want to meet and then send more ideas, I think to what your timeline is like, next week is still good to put some ideas

Group Member 4 10:51

in or so this project is due at the end of next week. So I really

COO 10:59

Tuesday, yeah, what needs to be done by the end of next week, you need to like or

Group Member 1 11:04

request for proposal, like the opportunity needs to be chosen. And then wow,

COO 11:07

I don't think next week is good.

Group Member 3 11:10

Or like, sorry, that's just for like the opportunity so that like design, actual actual design will come after?

COO 11:15

No, I understand. But even to just the ideas.

Magnetic Campus Director 11:20

Just for fun when you guys said your interest in the community, you know a bit about Danny, like, Are there any projects? even forget about Danny, are there any projects that amongst you guys, you're like, this would just be really cool to do. Because then tell us and maybe we can see maybe there's something we can implement, even if it's just for fun, like we always think of participant needs, but maybe building a basketball machine or a hockey throwing something. Our bikes will have fun with it. And they would love with it, like love it. We're just not thinking of it because we think of needs. But like, what's kind of fun for you guys to build based on your experiences and interests? And then maybe we can see if that's something that we actually apply here, as well.

Group Member 3 12:02

Yeah, I mean, I think the only thing with ABS it's not quite a specific like I think with our projects, we probably have to do something more specific. We can't just say like builds a really cool machine.

Magnetic Campus Director 12:17

On your buys interest

COO 12:20

really into hockey. Okay. somehow make a hockey stick that is easier to maneuver?

Program Director 12:29

I don't know. Yes, I know that would be so we'll kind of go backwards and say, yeah, yes, we need this because we can. We're not gonna if it really

did, we don't really want it, we will tell you. But it's not that we couldn't use that. Of course, we could use that that would be really cool. Right? So we can you know, you don't feel like after seeing the place if you're always going to wow, you want they need they because because we don't necessarily. Sometimes it's like we don't realize what we need to somebody tells us hey, this is possible. Right? So

Magnetic Campus Director 13:01

random fun idea. If you guys like basketball, because our guys, some of them love playing basketball. And then we have a few. I don't know if you guys know anything about ABA, but pretty much they were all taught, sit there until someone tells you what to do. So when we say go play basketball, they kind of stand there, like what's next. But if you give them a ball and say shoot, they'll shoot. But that's like, Okay, go get the ball. So even if you made a device that say timed on 10 seconds intervals or whatever prompts, because a lot of our participants benefit from prompting, and they'll might engage more with an activity if they no prompts are coming. So it's like, Okay, shoot 10 cents,

COO 13:44

like a talking to net. Yeah.

Magnetic Campus Director 13:46

Okay, you shoot. Okay, get your ball, hit the green button. Shoot, like, it can be prompted because then Sam and Evan who liked to play about stuff have to stand there and tell them what to do every single second. Maybe something like that would help them be more independent do the activity they like, and kind of give them that new freedom that otherwise they rely on us to do it. Because basketball is just like one thing they all love to do. So prompting is huge with quite a few of our participants doesn't have to be basketball. It's probably the most fun. Otherwise, it's like wash your hands to that because Yeah, something like that would be kind of cool.

Program Director 14:35

And you guys mentioned soundproofing, too.

Magnetic Campus Director 14:39

So we had to hear the voices. There's no Imagine me in the office beside that. Down the hall and around the corner. This is a quiet activity. Yeah, and this is the

Team Lead 14:51

furthest room from all the action. It's not connected.

Program Director 14:54

So it's talk karaoke time.

Magnetic Campus Director 14:57

Wait until three As the as some sort of soundproofing insulation, I don't know if there's some sort of mechanism that can provide white noise, noise cancelling that can be put in individual rooms. So like we have a snooze, a quiet room and college students in Rome, but it's right beside the program room. So when the door is closed, you can still hear everything, that having some sort of noise cancelling device in the room for that room, if there was a way to set that up, would be huge for that. And then I'd probably put it in every single office for this little things in each corner that when activated, somehow, like thinking James Bond, sorry, by the house mirror creative ideas.

Team Lead 15:52

I get excited. But yeah, like finding ways to activate the ear. But that's the only downfall. Yeah, and given that our guys are quite sensitive to loud noises, like that's one of the biggest challenges we have here. Because what ends up happening is things get too loud, and it will set one to two people off, and then their behaviors might set somebody else off. And so it's a whole chain

Magnetic Campus Director 16:16

reaction. And then it's hard to get them into that quieter room where they can relax without moving the other 20 Something participants. So the noise isn't right there.

Group Member 1 16:29

I think one other key aspect of these like opportunities that I think it's important to mention is for like if it gets added up, if it ends up being chosen as one of the main opportunities that like eight to 10 teams work on, we need to have like about eight to 10 solutions for like plausible solutions for. So one that would only be better and more beneficial for you all just have more solutions to it. But it's like an expectation of our instructors to have unique solutions. So if there any, like specific things where it's not like, like for the case of soundproofing, though, that's obviously an extremely important thing that you found, as a staff member here, if there's like a couple of different things that we can do. But if it's not something that the higher 10 groups can do, it's either one not going to be not gonna get chosen to go beyond. But

Program Director 17:25

you need some uniqueness and complexity to the problem so that they want the opportunity to have like, we can't just go to buy some stuff. Yeah.

Magnetic Campus Director 17:37

Like if you think of say, Lauren, even I don't even know this legally allowed, but safe pretty much making a new chair slash Walker device that

could while we take her to the car, with her walker, there can be some sort of automatic chairs to say that she sits in it, it can stand her up and support her while we move the other stuff. So she doesn't have to hold the door can help

Program Director 18:05

like intermediary device. So you answer to this device, you literally take the walk on the chair away, she transfers to this Yeah. And then you take that away, or

Team Lead 18:15

share the has a lift that brings her up to then height so that she can just sort of like slide on there. Or she's not gonna slide off because you need to transfer more that's more complicated, but like holding on and pivoting much easier than like, yeah, twisting her entire body and contorting in ways that you shouldn't

Magnetic Campus Director 18:35

what like a second option can also be having some sort of Walker just for those transitions that can easily be turned backwards. So rather than only going straight, we can maneuver around her to the side quickly so that she can get in she I think it's too

Program Director 18:52

that just taking have problems to solve. One group might do some kind of hydraulic chair when groups can adapt the walker.

Group Member 1 19:04

Just because we're like in the last two minutes coming up with different solutions like that stuff. Yeah, like yeah, good opportunity. Yeah.

Team Lead 19:09

Sorry, it was a walker like the wheels get stuck, I think falls would be easier because they just rotate versus the wheel that like gets stuck in one position. So that's something also to consider because that's more mobile.

Magnetic Campus Director 19:26

And then something like that can also be used in the classroom to help her stand and sit from the chair there. That if it's a chair we can take outside to help bring her there. It's a chair that you can also use in the classroom to help support her when she stands and to turn around to be more

COO 19:43

was just the heads up in five minutes and you need to George

Team Lead 19:50

just wanted to point out that whatever prototype they make if it's successful, they can like patent it and

Magnetic Campus Director 19:56

honestly, a lot of people struggle with walkers based on one position. Shouldn't they make it like one size fits all for the most part, and none of them walk with the same game, we had it with a few participants where we're like, you guys are hitting yourselves. It's not, they can't move backwards.

Team Lead 20:13

Like, keep in mind, the walker should have a basket where they can put their things inside. And it has to fit through the door, obviously. Sorry, last thing, if Lauren's gonna if this works out and Lauren uses it, we need to come up with a liability waiver for her parents. That's all I'm going to say

COO 20:31

just for the process. So we have just discussion. We have ideas, obviously, alignment tenure very, I didn't even know

Magnetic Campus Director 20:41

it's a problem putting us in a room. That's crazy. She's the practical and I'm the dreamer. And then it's like, Oh, shit.

COO 20:48

will there be an option to work together? Movie? Let's say it is chosen and we are going to work on something. So will there be an ongoing process of working together? With the

Program Director 21:03

groups come here and try stuff out? Yeah. Like how do you envision it kind of dying from afar? Like how does

Group Member 4 21:10

the professor's they said that they basically give like one teaching assistant, like to shepherd all the groups for like each project, there is just so you guys aren't being bombarded by like 4010 different groups with four students each, like constantly emailing you. So they'd have like, one TA and then like, all the groups have their questions, and then they send you all the questions at once instead, we are

COO 21:34

weird, so we would enjoy it.

Group Member 4 21:39

Maybe they set up different depending on the community,

COO 21:44

we would love to be partners. Because yeah, I think it's also makes more sense to

Magnetic Campus Director 21:50

say that we would bring like five, six participants, like with Lauren included, and bring them to come and see where you guys work. And then you can see some of those things firsthand, standing to sitting or whatever else and old measurements.

Program Director 22:01

And also, you probably come to you

Magnetic Campus Director 22:05

guys and be like, Hey, happy you guys can go have fun and play basketball with them. And like board games, like that's what they want to do. They just want to interact with everybody. But then it can kind of give a different perspective to the project for all the groups understand the different meaning behind it.

Group Member 1 22:19

So when it comes to developing a solution, so for the first part of this project that we're doing now, this is just like framing and understanding opportunity, when we're going to start like having the teams work with the community develop specific solutions that will be after reading, like March starting would mainly be developing solutions of the poster.

Team Lead 22:43

Will you let us know for chosen?

Magnetic Campus Director 22:48

And if we're not, thank you guys so much.

Group Member 2 22:51

Yeah, I'm not sure if it'll work out. Like once we submit our assignment I think like the teaching team, like the sides, so I think they might potentially regenerate you guys. Because they will ask whether you guys are okay with like moving on. Yeah,

Group Member 1 23:07

whether or not the team's well written. That's one thing but like the main things if the community is willing to continue working, yeah, that project so I think

Team Lead 23:14

if you go the wheelchair Walker aspect and bring it from a place that just hasn't been presented in the world deal. Like this will make

Program Director 23:25

some of the community a big barrier to community collusion, it's yeah, you know, and then and then we'll convince you guys and it will go to the brawny thing Oh, the

Team Lead 23:38

brain is gone it's now a

Program Director 23:40

year or two old I'm just trying to remember as far as I went down

Program Director 24:03

I had my 20th birthday party

Team Lead 24:12

chosen my really think that this is a need

Magnetic Campus Director 24:16

that you know, yeah. Assumption matter. Yeah.

Group Member 1 24:20

Tommy, what are your titles like?

Magnetic Campus Director 24:24

I'm the program manager for this campus. So I'm responsible for the day program.

Team Lead 24:29

I'm the team lead.

Group Member 1 24:30

Just just

Magnetic Campus Director 24:35

just for fun, it's like social worker and OT. So we bring those like other perspectives into that. You can just throw that part in there. Using my title, they work in social workers and occupational therapists to meet the real

COO 24:53

simple, weekly schedule with no names on

## A2 - Virtual Meeting

[Group Member 1] 09:21:29

Hello!

[Group Member 2] 09:21:30

Hello!

[Group Member 3] 09:21:31

Good.

[DANI] 09:21:35

Hey, guys, how are you doing?

[Group Member 1] 09:21:37

Good! How are you?

[Group Member 3] 09:21:38

Good.

[Group Member 2] 09:21:38

Good, good.

[DANI] 09:21:38

Good, I'll get you still waiting on Magnetic Campus Director, I guess.

[DANI] 09:21:43

Okay, I'll apologize for it sometimes. The mornings I'm at the other campus.

[DANI] 09:21:48

We have 2 campuses right? The other campus. Sometimes it can be a little crazy for some in the morning, so I apologize on her behalf.

[Group Member 1] 09:21:54

No worries.

[Group Member 2] 09:21:55

Oh, that's all good!

[DANI] 09:21:57

I'm gonna message. Does she get in touch with you?

[Group Member 1] 09:21:59

She said that their computer, disconnected in the reloading. But that was a couple of minutes ago.

[DANI] 09:22:04

Okay. So I'm sure she's on it. Then.

[Group Member 2] 09:22:06

Yeah.

[DANI] 09:22:06

Okay. Alrighty. How are you guys doing? How did? How did it?

[DANI] 09:22:13

How's the process going?

[Group Member 4] 09:22:17

Pretty good.

[Group Member 1] 09:22:17

So what we have so far is good. We're just oh, Timing, enter the waiting room.

[Group Member 1] 09:22:22

Automatic.

[Group Member 1] 09:22:29

Is she in?

[Group Member 1] 09:22:32

Oh, there's!

[Group Member 2] 09:22:37

There we go!

[Group Member 1] 09:22:38

Hello!

[DANI] 09:22:42

Hey, guys, do you want to mute? And and Kyle there we have the little gangs there.

[Magnetic Campus Director] 09:22:50

So you go this side.

[DANI] 09:22:53

They're just gonna play musical chairs for a minute. Guys hanging.

[Magnetic Campus Director] 09:23:02

Okay, so.

[Magnetic Campus Director] 09:23:11

Okay, just about your phone number I also just downloaded the videos.

[Magnetic Campus Director] 09:23:17

We finally loaded onto the drive. So I don't know if you want to watch some of them. I could just screen share that way for now, or if you want to start with other questions, whatever you prefer.

[Group Member 1] 09:23:28

I think it will be good to start with the videos.

[Group Member 2] 09:23:31

Yeah, and a lot of my questions. We're focused around next week.

[Group Member 2] 09:23:36

That. So, seeing the video, might answer some of them already, yeah.

[Magnetic Campus Director] 09:23:40

Perfect.

[Magnetic Campus Director] 09:23:59

If you guys can let me screen share.

[Magnetic Campus Director] 09:24:20

Yeah, whoever the host is.

[DANI] 09:24:23

Just me actually make her the co-host.

[Group Member 1] 09:24:27

Okay, I changed it. So all participants can share. Okay, perfect.

[Magnetic Campus Director] 09:24:28

There we go!

[Magnetic Campus Director] 09:24:31

Yeah. Okay. So we took, thank you from 2 different angles.

[Magnetic Campus Director] 09:25:34

So that you can kind of see that she was holding the door to even get out we couldn't get a video for getting into the car.

[Magnetic Campus Director] 09:25:40

I can do that at the end of the day, when she goes home.

[Magnetic Campus Director] 09:26:14

Okay.

[Magnetic Campus Director] 09:26:28  
Oh, that's fine!

[Magnetic Campus Director] 09:27:07  
Oh! You know, like you kind of see what we meant by stability, that when she sits down the whole front of the walker comes up.

[Magnetic Campus Director] 09:27:16  
But there's also no support when she does have to move backwards or in a circle.

[Magnetic Campus Director] 09:27:24  
Is it all in front of her?

[Magnetic Campus Director] 09:27:33  
Then there is this one. If we're just trying to sitting in a chair where you can see she can't actually use the walker to support her in something like that.

[Magnetic Campus Director] 09:27:59  
You can see that the wheel is also getting in the way.

[DANI] 09:28:11  
And imagine that chair was just in the middle of the room, right?

[DANI] 09:28:16  
Yeah, you can sort of see we're kind of hoping for the best when she falls back into the chair that shares doesn't like flip over, or something.

[Group Member 1] 09:28:22  
Hmm!

[Magnetic Campus Director] 09:28:22  
Yeah, the other thing is, I don't know if you noticed this was minor, but the way that she pivots she plans her foot and then her foot in one spot, and then there's the rest of her body pivots so her foot remains.

[Magnetic Campus Director] 09:28:34  
In the same spot. So while her body is turning her foot, then faces the wrong way.

[Magnetic Campus Director] 09:28:40  
Check, the hallway.

[Magnetic Campus Director] 09:29:23

So do you have to tell there how narrow it is for actual date, and how her left foot keeps sort of hitting the left wheel.

[Magnetic Campus Director] 09:29:36  
She's going out to placement at 10.

[Magnetic Campus Director] 09:29:39  
So that's when I can take a video for getting into a car.

[Magnetic Campus Director] 09:29:44  
And we can try and get a few. Butter ones. This is just rust, because this is an Uber driver that drops them off so I can try and take a few more if you tell us what specifically, this is just an idea what more you wanna see and then we can kind of focus in on

[Magnetic Campus Director] 09:30:02  
that to give you a more detailed example.

[Group Member 1] 09:30:08  
Yeah, so those videos are great and well, the only thing that I think we're really looking for that's not already that you don't have.

[Group Member 1] 09:30:16  
You have an already shown is just getting into the truck, and then, like switching between.

[Group Member 1] 09:30:23  
Maybe like wheelchair or and Walker, and things like that.

[Group Member 1] 09:30:27  
That would be the only other stuff. But, like I know, Group Member 2 had more specific questions about something related to the video.

[Group Member 1] 09:30:36  
So, if if you want to continue.

[Magnetic Campus Director] 09:30:38  
Sure!

[Group Member 2] 09:30:40  
I don't like. I kind of lost connection during while you guys were showing the videos and I got back, I saw, like the her getting it up and down at at the table and like her just walking so I don't know. I've had specific questions.

[Group Member 2] 09:30:54

Kind of focusing on that. But I feel like the videos kind of answered them.

[Group Member 2] 09:30:58

I don't know. If did you guys know like, what specific like? If you have like measurements of her walker like how wide it is right now, or like, what kind of like or like what brand it is, or what kind of Walker it is I don't know that might be helpful in this yeah.

[DANI] 09:31:12

There might be on the walker. I believe it's there should be a model and serial number kind of a thing that we could probably look up.

[Group Member 2] 09:31:22

Yeah, I think, if, yeah.

[DANI] 09:31:22

I'm guessing. And then we could probably get that right off the Internet real quick.

[Group Member 2] 09:31:28

Yeah.

[Group Member 1] 09:31:28

Yeah, with the serial number. That'll be enough for us.

[Magnetic Campus Director] 09:31:30

Yeah. So we can send that to you, really, for sure.

[Group Member 2] 09:31:30

I think that'd be helpful.

[DANI] 09:31:30

Yeah.

[DANI] 09:31:33

Guy, just a general question. There's a gentleman here at this campus that also use the walker that we're having huge stability issues as well.

[DANI] 09:31:41

Is it helpful, or is it complicated things that we took some videos of him to?

[DANI] 09:31:47

And is that even what we're thinking that this would be a specific device for this individual? Or could this be a device that yeah, worship that could be for more than one person?

[Group Member 2] 09:31:57

I think that would be. I think that would be helpful.

[Group Member 3] 09:31:58

We can.

[Group Member 2] 09:32:01

I think what we're trying to do at this point is, we're kind of trying to keep it broad in terms of like making a walker that can be like adjusted for specific people's needs in some way.

[Group Member 2] 09:32:12

So I think, yeah, that would be like, that'd be helpful, I think, to get other videos. We can.

[Magnetic Campus Director] 09:32:16

I think the sorry. I think the goal is to make a walker that is more accessible for people who have a different gate right?

[Group Member 1] 09:32:17

Yeah.

[Group Member 2] 09:32:24

Yeah, yeah.

[Magnetic Campus Director] 09:32:25

Because we can see that Laurn's knees are both, but her life kind of flail out, and with the other person you're talking about, Program Director he's kind of the same.

[Magnetic Campus Director] 09:32:34

It's more erratic. And so the walker doesn't provide that space for that irregular gate.

[DANI] 09:32:39

For him. It just right. At this point it's just trunk control.

[Magnetic Campus Director] 09:32:39

Yeah, okay.

[DANI] 09:32:44

It seems to be like this for my lament. It seems like like trunk control so he can't, so he has trouble like when he gets he. When he gets off.

[DANI] 09:32:52

He doesn't have the strength in the meantime, so he's kind of going this way and that way.

[DANI] 09:33:02

Which I think like okay, so I'm gonna get in touch with their family, see if I can get pretty to get a couple of videos to you guys today, too.

[Magnetic Campus Director] 09:33:05

Yeah.

[DANI] 09:33:13

Okay, cause he's, you know, there's some transfers there that

[DANI] 09:33:18

Mind.

[Magnetic Campus Director] 09:33:20

Okay.

[Group Member 1] 09:33:20

Yeah, they'll be like initial opportunity was grounded in Lauren's experience.

[Group Member 1] 09:33:26

We're trying to make something a bit more general like we specifically said, like, even making a new walker.

[Group Member 1] 09:33:30

But we don't want to like scope too much.

[Group Member 1] 09:33:35

Or like, be too narrow in that like, if we have it as an addition to an existing walker that could introduce numerous more solutions.

[Group Member 1] 09:33:43

So that's just something else to keep in mind. But yeah, we're looking for a more general solution to it.

[Group Member 1] 09:33:49

So any other videos would definitely be helpful.

[Magnetic Campus Director] 09:33:51

Yeah, and I think if you think of like what you just said, I think I don't know what the research is on. It.

[Magnetic Campus Director] 09:33:57

But the General Walker, is for someone who just needs support.

[Magnetic Campus Director] 09:34:01

So people, think of the elderly where they have some balance, but they need extra support we're walking because they're been unsteady.

[Magnetic Campus Director] 09:34:09

But where is there Walker? For younger people or people with actual mobility, stability issues?

[Magnetic Campus Director] 09:34:17

There really isn't a because this model doesn't help with this stability and having that extra weight when they are sitting or moving also having a weather base or yeah. So it sounds like you have wheels farther out and it tapers in like A B to the top.

[Magnetic Campus Director] 09:34:36

Someone can still hold it, but it gives some more stability, so when they make a turn, or if they're had more robotic movements the walker won't tick.

[Magnetic Campus Director] 09:34:46

So with both of them. But the other participants involved that you'll get videos on if they get off balance, the walker will fall with them.

[Magnetic Campus Director] 09:34:54

It's not made for those unbalancing situations.

[Magnetic Campus Director] 09:34:59

Not just a turn, but they're walking straight, but they trip on themselves, or if they kind of have a static movements, it's not there to support them.

[Magnetic Campus Director] 09:35:09

It actually is more unsafe in some ways, cause it will fall with them, and then they can't catch themselves.

[Magnetic Campus Director] 09:35:19

So if you wanna look at building on a new walker, it's like the ones you're seeing are the general ones that are available everywhere for everyone.

[Magnetic Campus Director] 09:35:27

But we don't know of any like this role we've talked to for Physio to see if there's a different Walker cause we saw that it doesn't work the best.

[Magnetic Campus Director] 09:35:36

And they said, There's nothing else, and I'm sure, for the other participants.

[Magnetic Campus Director] 09:35:41  
Sammy, it would be the same where he wants to walk.

[Magnetic Campus Director] 09:35:43  
You can walk, you can move, but he needs that safety of the walker and the walker's not providing on safety for either of them.

[Group Member 4] 09:36:01  
I have a question about her, Walker, Lawrence Walker, when it went up, when she was trying to like, when she put weight on the front of it.

[Group Member 4] 09:36:08  
Does it have breaks like? So that wouldn't happen.

[Magnetic Campus Director] 09:36:12  
It happens with the breaks, she puts the race on before she sits.

[Group Member 4] 09:36:17  
Okay.

[Magnetic Campus Director] 09:36:17  
Okay. When she says cause they're trying to use it for support.

[Magnetic Campus Director] 09:36:22  
Cause. She can't sit on her own, and the walkers are meant for support for an average person walking, standing, who could sit independently so every time she sits.

[Group Member 4] 09:36:28  
Yeah.

[Magnetic Campus Director] 09:36:32  
The, because what she's doing is, even though the wheels are locked, they're not even locked that well, but they're locked.

[Group Member 4] 09:36:35  
Okay.

[Magnetic Campus Director] 09:36:41  
And so when she sits down, she just pulls the whole thing with her.

[Magnetic Campus Director] 09:36:45

But at the same time pulling. It is slowing her down because she can't sit on her own slowly, anyways, so like when you saw how she was sitting at the table on the chair.

[Magnetic Campus Director] 09:36:57

Even though she fell back and saw the chair, moved back with her.

[Group Member 4] 09:37:00

Yeah.

[Magnetic Campus Director] 09:37:02

So with the walker, it prevents the whole chair from moving.

[Magnetic Campus Director] 09:37:06

But the whole walker is moving, and it could fall on her at the same time.

[Group Member 1] 09:37:10

That breaks system that you were talking about. Is it just like like I'm thinking of it like scooter or something.

[Group Member 1] 09:37:19

And you have like something that you put on the end of the wheel to just keep it shut.

[Group Member 1] 09:37:22

Is it something like that, or is it? And breaks like, what is the break system?

[Magnetic Campus Director] 09:37:26

It's hand breaks to push them down one at a time.

[Group Member 1] 09:37:28

And do you have to hold them like the entire time for it to be on break?

[Group Member 1] 09:37:33

Or do you like? Stop it into place, and it's phone, break.

[Magnetic Campus Director] 09:37:35

The letter? Yeah.

[Group Member 1] 09:37:37

Okay. Thank you.

[Magnetic Campus Director] 09:37:40

And I think that standard for most walkers.

[Magnetic Campus Director] 09:37:59

Hmm!

[Group Member 1] 09:37:59

Alright! Go ahead!

[Group Member 3] 09:37:59

I was. Gonna say, this is a more general question about the walker.

[Group Member 3] 09:38:05

But what type of stuff 2 people generally store.

[Magnetic Campus Director] 09:38:12

In the basket.

[Group Member 3] 09:38:12

Yeah.

[Magnetic Campus Director] 09:38:17

It's kind of like a purse for some of them like Lauren puts her purse in it, because if she has something hanging while she's walking it gets to the way, and like hits, the Walker Sammy clicks all the jump in the world, in there like any personal items so really

[Magnetic Campus Director] 09:38:37

you can think of it as a purse. Good they don't necessarily wear, because I don't know where they can't physically wear.

[Magnetic Campus Director] 09:38:46

Use the walker, or manage with their mobility.

[Group Member 3] 09:38:48

Great. Thank you.

[Magnetic Campus Director] 09:38:50

Like her water bottle, her purse, and she were to go shopping and buy something like they go for girls.

[Magnetic Campus Director] 09:38:56

Group once a week, and they go shopping so the other girls can carry it where Lauren puts it in her. Walker.

[Magnetic Campus Director] 09:39:06

But they're always like removable baskets.

[Magnetic Campus Director] 09:39:09

So even for her like to get the walker in the car.

[Magnetic Campus Director] 09:39:12

The walker holds so they can kind of fit in the card, and then it it unfolds. So the basket has to come off first and order for it to hold.

[Magnetic Campus Director] 09:39:24

Okay, I'm gonna take a picture. So yeah.

[Group Member 3] 09:39:26

Thanks.

[Magnetic Campus Director] 09:39:32

I mean, I expect that. Yeah.

[Magnetic Campus Director] 09:39:35

That would be a key feature, regardless having that option for personal anything.

[Magnetic Campus Director] 09:39:43

Her. Walker also has a chair, and I don't know if that I don't know.

[Group Member 1] 09:39:44

So!

[Magnetic Campus Director] 09:39:50

If it'd be a better option to have that seat be flipped up when not used to provide more space for the legs, because I think it's possible her knees hit that as she walks.

[Magnetic Campus Director] 09:40:04

So some Walker models do have it that the plastic piece in the front you can use it as a seat, or it can come up like I think Sammy's might be more like that.

[Magnetic Campus Director] 09:40:16

But he uses as a seat where? Morning? That is, Sandy manages to kind of hold. The walker.

[Magnetic Campus Director] 09:40:25

He used to pull it around here, and I move around it where other people and.

[Group Member 1] 09:40:35

So, just.

[Magnetic Campus Director] 09:40:35

Do you know, we should keep some of hear me would be helpful for them if we literally bring together the walkers right now.

[Group Member 1] 09:40:38  
It will be helpful to see it actually.

[Magnetic Campus Director] 09:40:52  
Gotcha awesome. So here. So this is the seat part we're talking about.

[Magnetic Campus Director] 09:41:00  
So firms doesn't come up, but other ones too. And then, if you look here, these are the hand breaks.

[Magnetic Campus Director] 09:41:11  
Yeah.

[Magnetic Campus Director] 09:41:15  
So we can actually show you more of what it is.

[Group Member 1] 09:41:19  
That'd be great.

[Magnetic Campus Director] 09:41:20  
Got it?

[Magnetic Campus Director] 09:41:23  
I don't know if this phones no, this one doesn't fall so this one she keeps here so when we go on community we use, we all share.

[Magnetic Campus Director] 09:41:34  
But other ones do full, so people can take it with them wherever they go.

[Group Member 4] 09:41:45  
Do the knock wheels turn, or is it just the front ones?

[Magnetic Campus Director] 09:41:49  
Back wheels also turn for baseline. There, pardon!

[Group Member 4] 09:41:51  
But they don't have the same range of motion right?

[Group Member 4] 09:41:54  
Because I think the front the front ones. They move like 360 degrees right, but to the back ones, like have the same.

[Magnetic Campus Director] 09:42:00  
Oh, to chat! They don't turn. Yeah. So thank you.

[Group Member 4] 09:42:03

Okay. Okay.

[Magnetic Campus Director] 09:42:08

Okay, we can take that camera on so that will turn it all.

[Magnetic Campus Director] 09:42:19

So the front ones turn the backlining are straight.

[Magnetic Campus Director] 09:42:24

Oh, there's actually a problem with the wheel. It's flat.

[Magnetic Campus Director] 09:42:29

Yeah, yeah, it's gone completely flat. Because so what happens is what?

Okay?

[Magnetic Campus Director] 09:42:34

So here, I don't know if you guys hear us from there.

[Group Member 4] 09:42:37

Yeah.

[Group Member 1] 09:42:37

Yeah.

[Magnetic Campus Director] 09:42:38

Are you talking? Okay? Breaks. Come down the breaks now they're off.

[Magnetic Campus Director] 09:42:46

So this is moving still with the brakes on. So it's not super studied and when Lauren walks she's putting so much weight on the left side that the wheel has become flat on the bottom right here you can rain closer that chair so she ran it down to the point where it's down

[Magnetic Campus Director] 09:43:08

to the plastic. Want to move this other way?

[DANI] 09:43:14

Yeah, I I think those are designed more to steady than to barely the weight, and I think she probably uses a little bit differently than somebody else where she is live, you know, literally almost got using the one foot to kind of guy

[Magnetic Campus Director] 09:43:15

Yeah.

[Magnetic Campus Director] 09:43:34

But also Program Director, and she. But she's walking forward, and so with, because she's forward, and she's unable to leave there as well on her legs.

[Magnetic Campus Director] 09:43:44

She's adding the extra pressure as well and so when she walks like, it's very easy if you're if you're more.

[Magnetic Campus Director] 09:43:56

So, I consider, okay, yeah, that's it. Yeah.

[Magnetic Campus Director] 09:43:59

So she kind of looks like this, right? And so there's a lot of.

[DANI] 09:44:06

Yeah.

[Magnetic Campus Director] 09:44:08

Hitting. Yeah. Do you want to show them how a try it is?

[Magnetic Campus Director] 09:44:15

So not just on this, Walker. The other ones deterrence would be really hard.

[Magnetic Campus Director] 09:44:28

So that's for someone who's an animal walker who doesn't actually use it for support.

[Magnetic Campus Director] 09:44:35

Or if you're using it just for support playing away on it won't turn as much.

[Magnetic Campus Director] 09:44:39

She's got it. Do like that much wider turn and even that's like there's no body rotation.

[Magnetic Campus Director] 09:44:48

It's all legs, so she's got to do a bigger turn. We've been.

[Magnetic Campus Director] 09:44:52

We've been tracked to seeing more control, but still, like once she's walking in the hallway because she needs left our one. Thanks.

[Magnetic Campus Director] 09:44:59

He's basically walking like this.

[Magnetic Campus Director] 09:45:09

You can see this stuff personal stuff so how it would hold up.

[Magnetic Campus Director] 09:45:20

But yeah, again this like, I'm not even putting a lot of pressure on here.

[Magnetic Campus Director] 09:45:27

And the brakes are not doing the goal heck of the way.

[Magnetic Campus Director] 09:45:35

Do you wanna see any other part more closely on the walker?

[Group Member 1] 09:45:40

I think what you've shown us great so far.

[Group Member 1] 09:45:45

Would you be able to just send a picture of the walker itself that she's using just that like shows the seat and the wheels and things like that?

[Magnetic Campus Director] 09:45:55

Yeah.

[Group Member 1] 09:45:55

It's just. It will be easier for us to like when we're referencing things, to have a picture to demonstrate that.

[Magnetic Campus Director] 09:46:01

Correct.

[Magnetic Campus Director] 09:46:07

Okay, I'm just taking pictures. Now.

[Group Member 3] 09:46:15

Okay, also, just a quick question. So the wheels, the fixed wheels at the back.

[Group Member 3] 09:46:20

Do those provide like significant lateral stability?

[Magnetic Campus Director] 09:46:28

I wouldn't say they provide a lot of stability.

[Magnetic Campus Director] 09:46:30

In the sense of like movement that's anything other than straight.

[Magnetic Campus Director] 09:46:41

Yeah.

[DANI] 09:46:44

Like for the other gentlemen we work with sometimes when we find which is scary when he loses trunk control, so he down on the walker the walking will actually tip up and up and down a little bit, so I don't know if that ever happens with lauren but.

[Magnetic Campus Director] 09:46:55

H hmm!

[Magnetic Campus Director] 09:46:59

Yeah, like, even with her sitting. You see how it moves.

[Magnetic Campus Director] 09:47:03

Bye, bye. In general, if you get scared and kind of jumps.

[Magnetic Campus Director] 09:47:09

The, and if she turns around she almost lifts the one side with her.

[Magnetic Campus Director] 09:47:19

So I think in a general concept there could be walkers made more first stability other than just support for people who are walking regularly.

[Group Member 1] 09:47:33

So for our solutions, we have to develop like a setup requirement.

[Group Member 1] 09:47:39

So these are like main objectives, and metrics, or main objectives, that the solution has to meet right.

[Group Member 1] 09:47:44

So these are the kinds of things we have to make for the coming assessment.

[Group Member 1] 09:47:50

And we have, like 3 main, like higher level things that we want to address being safety and usability and ergonomics, safety.

[Group Member 1] 09:48:00

We've discussed a lot about different issues with safety and usability is just like specific used cases that like people with physical disabilities have for a walker as opposed to just like seniors.

[Group Member 1] 09:48:12

But we are wondering if there's any specific ergonomic things like that would just make it easier.

[Group Member 1] 09:48:17

It's not like going to risk their safety or anything but any specific changes that would just make it easier for them to use with.

[Group Member 1] 09:48:27

Maybe, like grip or gate, or things like that.

[Group Member 1] 09:48:29

If there's anything that you have in mind.

[Magnetic Campus Director] 09:48:34

I think, making the base. It's a lot from one movie.

[Magnetic Campus Director] 09:48:40

Did you see how she walks that even if you gave an extra 2 inches on each side and that could probably be for other people, too, like if they don't walk in it narrow hit with link that I have a bit of a link for something that goes out there isn't room for that I would get anything

[Magnetic Campus Director] 09:48:58

else.

[Magnetic Campus Director] 09:49:01

The grips. So the the walkers do go up and down or heights, but they don't necessarily go to the side.

[Magnetic Campus Director] 09:49:13

So if you had someone who's bigger, I don't know.

[Magnetic Campus Director] 09:49:16

That would be different research for you to do. But if they're always holding it here, what if someone needs to hold it this way?

[Magnetic Campus Director] 09:49:24

To support themselves, or there's no option for, say, someone who can, even with we have a different participant.

[Magnetic Campus Director] 09:49:34

She's not in town. Tanya, who also uses a walker sometimes when we go further distances and she ends up, sometimes using her forearms because her brick can't go in that straight line.

[Magnetic Campus Director] 09:49:49

It's kinda turned like this. So when she walks to walk like this is very hard for her.

[Magnetic Campus Director] 09:49:55

So a whole body kind of ends up going like this.

[Magnetic Campus Director] 09:50:00

So to walk like this is uncomfortable, but it you were able to change.

[Magnetic Campus Director] 09:50:04

The handles, or add an extra piece in the middle, that could be custom to the grid that probably would help in positioning.

[Magnetic Campus Director] 09:50:13

And this is assuming everybody has a group to hold on right.

[Magnetic Campus Director] 09:50:17

There's no alternative to those who, if somebody, let's say, has Cp, and it's able to walk, but doesn't have a they can't hold this walker.

[Magnetic Campus Director] 09:50:27

The other thing I was thinking of. But what sorry could potentially work really well or be lightly?

[DANI] 09:50:30

Even shaking this. Yeah, go ahead.

[Magnetic Campus Director] 09:50:38

Is like when you think of the Dyson. It's a ball, so it moves sort of every which way.

[Magnetic Campus Director] 09:50:44

Here, as you can see, the wheels make this a very forwards and backwards device, whereas falls would allow a side to side movement as well.

[Magnetic Campus Director] 09:50:54

The only question is, if somebody is very unstable with that sort of Hmm.

[Magnetic Campus Director] 09:51:01

I know. I guess it falls under safety, but maybe it can go under economics at the same time, is kind of having something like training wheels.

[Magnetic Campus Director] 09:51:11

I can come off the side. So if someone is unstable, or maybe balance is an issue having an attachment so that it doesn't tick to decide fully.

[Magnetic Campus Director] 09:51:23

So there is kind of like that training wheel that can come off the sides so it doesn't fully fall over.

[Magnetic Campus Director] 09:51:31

But that can also just make people feel more comfortable and walking so they can kind of go in both sections.

[Magnetic Campus Director] 09:51:40

Oh, okay, is safe, even if it's not a wheel, and just a bar that would stop to walk her from falling over.

[DANI] 09:51:40

Yeah, even, just get back to the grip, even just the size of the grid, right?

[DANI] 09:51:52

So we have people to that are also very shaky.

[DANI] 09:51:55

And there's trying to find it in space if it were bigger, and and once they grasp, and if it were easier to grasp, maybe if the material themselves was a little bit easier to hang on to.

[Magnetic Campus Director] 09:52:07

I think that would go on the also like sort of an attachment, like an additional piece that could be graded for a any particular person like have various sizes included, or even like.

[DANI] 09:52:12

Right, right.

[Magnetic Campus Director] 09:52:20

For somebody who might not be able to necessarily group. Obviously we don't want somebody bending forward and placing all of their weight.

[Magnetic Campus Director] 09:52:28

However, if there arms do need to rest on top, because that's how they're gonna walk, anyway, instead of gripping, that's another option as well.

[Magnetic Campus Director] 09:52:37

Yeah, so you can probably look at a few different extension pieces like even just going off of that, like, always walking with their hands straight.

[Magnetic Campus Director] 09:52:46

And there's a chair for people to sit if they can get it turned around.

[Magnetic Campus Director] 09:52:50

But if they don't wanna sit just to take a rest at a stoplight while we're waiting to cross the street. If there was an extension near the arms where

it could be a bit higher where they could put their arms on it to rest their body weight on it rather than just the risks.

[Group Member 1] 09:53:18

That's great. I was just looking for more specific examples for economics, and that was definitely helpful and, Lana, to your point of the wheels.

[Group Member 1] 09:53:26

That was definitely something more additional research we were doing on like different types of wheels, because even with Lauren's example, the videos, he just showed how like the backbone don't even turn side to side.

[Group Member 1] 09:53:36

That was definitely a consideration for us when it came to usability.

[Group Member 1] 09:53:41

But Group Member 4, Group Member 3, Group Member 2, do you guys have any more questions?

[Magnetic Campus Director] 09:53:49

And even in regards to wheels, looking at different, like bigger wheels in the front, or something cause I don't know if you saw in the video how we have a RAM from the sidewalk, from like the parking lot going up but I don't know if you guys saw that

[Magnetic Campus Director] 09:54:07

so we actually have to help her get over that hump because the wheels don't go over it easily, and if they do, you need so much body force to push it over that a lot of people who have walkers don't have that force to make it, go or that to stand pick up their

[Magnetic Campus Director] 09:54:27

Walker, and get it over that curve and you'll see that with a lot of the walker is just because our streets are completely straight all the time.

[Magnetic Campus Director] 09:54:39

That's a different accessibility. Issue. But wheelchairs have so many different types of wheels that maybe we can look at walkers having different wheels to make navigating easier, not just for side locks, but in the snow and the sleep.

[Magnetic Campus Director] 09:54:54

And the ice. Those considerations, as well, I can tell you, the wheels for the upper baby stroller do very well in winter, so if you're looking for size, it is good, but that's pushing.

[Magnetic Campus Director] 09:55:09

It's not. Anyway, it's a good one. Yeah.

[Group Member 1] 09:55:11

No, that's actually good. Cause. Another part of this is having reference designs.

[Group Member 1] 09:55:15

And so if we have that, even if it's not a walker having reference designs of different wheels or things like that, it's actually very helpful.

[Magnetic Campus Director] 09:55:20

Okay. Yeah. No like these have no grip on them.

[Magnetic Campus Director] 09:55:28

They're kind of just plastic key material. Other walkers probably have different wheels, but in general it doesn't look like they're made for outdoor use like a stroller or wheelchair.

[Magnetic Campus Director] 09:55:41

But yeah, this looks more like indoor. Yeah, so can you even be, is there an indoor and outdoor Walker?

[Magnetic Campus Director] 09:55:51

And does that outdoor Walker provide that more stability?

[Magnetic Campus Director] 09:55:55

Have different attachments. Arm rests for stops. Alright, that could be useful with walkers. You can just squeeze a button, and the whole wheel pops off in case your will gets damaged, and then you can just buy one replacement wheel and put it and just clicks right back in and

[Magnetic Campus Director] 09:56:15

you're good to go.

[Group Member 3] 09:56:24

I said a quick question going back to kind of turn Radius.

[Group Member 3] 09:56:26

Is there any particular like space constraint that you have to be able to fit in with the turn radius?

[Magnetic Campus Director] 09:56:32

Yes, the bathroom.

[Magnetic Campus Director] 09:56:36

That is the biggest challenge, I would say here, but also like just thinking about in the community.

[Magnetic Campus Director] 09:56:43

You know you go to any clothing store. The aisles are made wide enough for maybe 2 people to walk by.

[Magnetic Campus Director] 09:56:53

Maybe so when you have to sort of veer one way or another, it's hard when you know somebody's in the way, and you just can't make that turn, or you have to make a sharp turn into a room anything like that.

[Magnetic Campus Director] 09:57:07

Yeah, and also like regarding the car we'll take the video.

[Magnetic Campus Director] 09:57:13

And she gets in, but kind of like how she had to walk right into the table and then get around the walker.

[Magnetic Campus Director] 09:57:20

Well, we have the door of a car there, so we have to get her to stop, and we move the walker to the side.

[Magnetic Campus Director] 09:57:29

But we have to lift it, cause we can't just turn it in a small space between her in the car, in the door to get it out of the room.

[Magnetic Campus Director] 09:57:40

So anyone might have that issue, regardless of what side of the car they go in.

[Magnetic Campus Director] 09:57:48

Hello!

[Group Member 3] 09:57:49

Thank you.

[Group Member 1] 09:57:54

Okay. So I know you said 9, 15 to 10, hey?

[Group Member 1] 09:57:59

I we don't wanna give you guys over too long.

[Group Member 1] 09:58:03

So the unless there's any other questions, Group Member 2, Group Member 4.

[Group Member 4] 09:58:09

Good friend.

[Magnetic Campus Director] 09:58:09

Yeah, so.

[Group Member 2] 09:58:10

No, I think I'm good. You guys, everything you guys said was really helpful. Yeah.

[Magnetic Campus Director] 09:58:14

So we'll get you a video of Lauren getting in.

[Magnetic Campus Director] 09:58:18

We'll send you the pictures wheelchair transfer as well, and we'll show you the wheelchair transfer, and then Program Director will get you some other videos of Sam.

[DANI] 09:58:29

And then totally up to you guys, you know, I don't wanna overwhelm you with information, or you'll have it so you can refer to it as much or a little as you want, but just to have a comparable. But some of the other people with lockers, are dealing. With.

[Group Member 1] 09:58:41

That would definitely be very helpful. So for now, just so, you're aware of our own deadlines and things like that.

[Group Member 1] 09:58:49

So with the like videos, and everything that you've provided we're just gonna finish like a main draft for tomorrow, that that we need.

[Group Member 1] 09:58:58

And then our final due date is on Sunday. For this this whole project, and so at that point, that's when we'll submit our Rfp.

[Group Member 1] 09:59:11

And then, for we have like a reading week, like a break for a week.

[Group Member 1] 09:59:14

And so that's when, like our instructors will choose the the.

[Group Member 1] 09:59:18

Best 8, and that's when you may be contacted.

[Group Member 1] 09:59:20

If they like. Are Rfp enough. But one more thing is that if we I I know it's extremely last minute, and I don't wanna keep inviting you to meetings in like the next 3 days.

[Group Member 1] 09:59:37

So I think if it's best with you guys, we can stick with email correspondence.

[Group Member 1] 09:59:43

If there's anything else. But if it would be possible to have some kind of meeting on like Friday or Thursday, this can be discussed by email.

[Group Member 1] 09:59:52

But I just wanted to preface it, because it would be very helpful for the last minute things.

[Group Member 1] 10:00:01

But if you don't think that's possible, obviously we can definitely stick to email correspondence.

[Group Member 1] 10:00:05

That's just something I wanted to mention.

[DANI] 10:00:07

Yeah, I think possibly you may not get all of us, but I think I'm sure we can figure out some to, you know, to connect with you. I'm guessing it, guys.

[Magnetic Campus Director] 10:00:08

For sure!

[Group Member 1] 10:00:17

Alright, perfect, perfect. And so just one more thing I wanted to mention for this submission.

[Group Member 1] 10:00:24

We need to like. Have we been wondering first, if we could use Warren's name in it.

[Group Member 1] 10:00:32

Is that all right to put in it in the document?

[Magnetic Campus Director] 10:00:36

I'll ask her mom about her name, but as long as you don't need her last name it should be fine, and if not, we can also just make up a name for her.

[Group Member 1] 10:00:42

Yeah, yeah, we would just let it be. First thing.

[Group Member 1] 10:00:48

Yeah, sure.

[Magnetic Campus Director] 10:00:49

So!

[Group Member 1] 10:00:52

And yes, along with the submission, we also need to have a list of like contact information.

[Group Member 1] 10:00:59

And I think giving all 4 might be a bit like much like they just want to contact with one individual.

[Group Member 1] 10:01:09

So is there someone that we could put down for the contact information?

[Group Member 1] 10:01:15

And that's who the instructors would be talking to to like.

[Group Member 1] 10:01:18

Continue on with this project.

[DANI] 10:01:22

I mean I'm happy to, but made more sense if we're gonna focus on the allocation is kind of centered around Lauren.

[DANI] 10:01:34

Would it make sense, Stanford, at your Atlanta, or?

[Magnetic Campus Director] 10:01:35

Sure so it can be me, and then.

[Magnetic Campus Director] 10:01:42

We'll say, like the focus is around Lauren, even though it's more general.

[Magnetic Campus Director] 10:01:46

And then that's fine.

[DANI] 10:01:47

Yeah, I mean that I think it's just for on paper, I mean in reality, wherever we need, we can kind of do.

[Group Member 1] 10:01:50

Yeah, that's.

[DANI] 10:01:54

But just to like what to contact would be, for Casey University wants to to talk to us about the project.

[DANI] 10:02:01

Is that kind of what like? What would the function of the contact be?

[Group Member 1] 10:02:04

So for that, contacts so like, let's say, they are interested in our Rfp.

[DANI] 10:02:05

Okay.

[Group Member 1] 10:02:12

To continue with and continue with being like having 8 to 10 teams work on it.

[Group Member 1] 10:02:17

They would just ask for your like one consent to continue with this project, but also like, let you know, the different expectations of you're gonna be communicating with 10 different teams through our instructors and things like that.

[Group Member 1] 10:02:30

It's just like, if you're willing, that conversation won't be very long. I'd imagine.

[Group Member 1] 10:02:34

But just something I wanted to mention, because our instructors made it clear that they will be contacting every single organization that they're interested in continuing with.

[Magnetic Campus Director] 10:02:46

So you can put my name down, and anyways I'll talk to everybody about everything, anyways.

[Group Member 1] 10:02:50

Yeah, of course.

[Magnetic Campus Director] 10:02:53

Is that fine?

[Group Member 1] 10:02:55

Alright, that's I think, everything we have for today.

[Group Member 1] 10:03:00

Thank you so much, all, for if you come, I'm pretty.

[Magnetic Campus Director] 10:03:03

Thank you. Okay.

[Group Member 1] 10:03:05

Last minute to a meeting it. It was very helpful, and the videos and pictures are definitely gonna be very helpful for us to find the project.

[Group Member 1] 10:03:12

So thank you so much.

[Magnetic Campus Director] 10:03:13

Perfect. Thank you. Thank you. Have a good one.

[Group Member 2] 10:03:17

Thank you very much. Yeah. Hey, guys.

[Group Member 1] 10:03:18

You too!

[Group Member 3] 10:03:18

Thanks.

[Magnetic Campus Director] 10:03:19

Bye!

[DANI] 10:03:19

Okay, you guys take care. Thanks again. Guys.

### A3 - Email Correspondance

Hi Everyone,

Below are the answers from Lauren's mother and myself. Feel free to add whatever I missed!

Lauren's mother, [REDACTED] says;

1. Yes, it's okay to use Lauren's first name and picture.
2. Lauren has a rare genetic disorder, CTNNB1. Symptoms include: mild intellectual disability, learning disabilities, muscle issues, ADHD and mood disorders. It is similar to Parkinson's as Lauren's brain does not produce any dopamine which is the root of the problem.
3. I would pay between \$500 - \$1000 depending on what can be implemented.

Other Questions:

#### **How would the staff explain the mission statement and goals of DANI?**

**(other than what is on our website)** : Staff implement the DANI mission and values daily in how they present themselves, interact with families and participants and how they program. Staff ensure programs focus on using a person centered approach which involves focusing on who the participant is (likes, dislikes, strengths), not what their diagnosis is. Staff build programs to match participant goals and focus on participants reaching their full potential by learning and practicing different skills through employment training, life skills programming, community involvement, and everyday social interactions.

#### **(WEBSITE)**

Mission: DANI's mission is to deliver a full continuum of person-centred services - including social, recreational, employment training, social enterprises and residential - to adults with cognitive challenges, incorporating Jewish practices and traditions; and integrating into the community, and its service networks.

Vision: DANI will be a dynamic, proactive, accessible, innovative, and highly collaborative organization that serves adults with cognitive challenges throughout their lifetime ensuring that they each reach their full potential.

#### **What are some ways Lauren's mobility affects her independence and how she can participate in Day Program activities?**

Lauren would be able to be more physically independent at DANI and in the community if she had the proper support/walker. Areas where this would be seen as possible are;

1.  
**Going to the washroom:**
  - Cabinet of a sink gets in the way (walker in front)
  - closing/opening washroom doors (stalls and regular door) if it is not electronic
  - Turning and backing up onto a toilet if there is not a lot of room

2.

**Kitchen Skills program:** Lauren is learning to cook in this class and is unable to fully engage as the sink is not accommodating to her walker

- 

Washing hands/dishes at the kitchen sink (needs to get closer to the sink to be able to support herself)

3.

**Lunch Time:** all participants are encouraged to be independent in putting their dishes in the bins. Lauren has done this (we put her plate on the walker so she can get to the bins) however because the walker is not stable the plate has fallen off when she tried to stand (walker tips back)

4.

**Getting in and out of the car:** Lauren is able to physically get in and out by pulling on handles/doors of the car. Promotes her keeping up her strengths and independence.

- 

The walker is stuck in front of her and she is unable to move it to get into the car. Safety issue for her and staff

5.

**Programs/free time:** Participants are encouraged to interact with each other socially and get activities they enjoy and bring them to interact with peers.

- 

Lauren initiates less peer interactions because she does not want to move from where she is sitting and often does not want to bother others to come to her

- 

Lauren is not comfortable getting up and sitting down without staff support as it is very difficult to do safely with her walker.

**To your understanding, how might Lauren's mobility affect her mobility outside of DANI?**

Lauren's mother explained that they have the same issues at home with addition to:

- Lauren has ensuite bathroom however can not close the door
- She does not have the ability for complete privacy as her doors stay open
- parents/others need to assist lauren to get up from one area to another (The walker 'flies away' even when brakes are on)

**What specific things do staff need to do for Lauren that is not necessary for other participants?**

- Everything listed above shows how her mobility affects her independence (getting up, keeping the door closed in the washroom, taking dishes, car assistance, etc.)

**Any other general ideas you feel we might be missing, or you think would be beneficial to include**

- Points made about ergonomics in conversation i feel would really assist lauren a lot in feeling more comfortable and stable using her walker
- Finding a way to have an indoor/outdoor walker (wheels that are better able to navigate outside)

## Appendix B - Visual Representations of Requirements

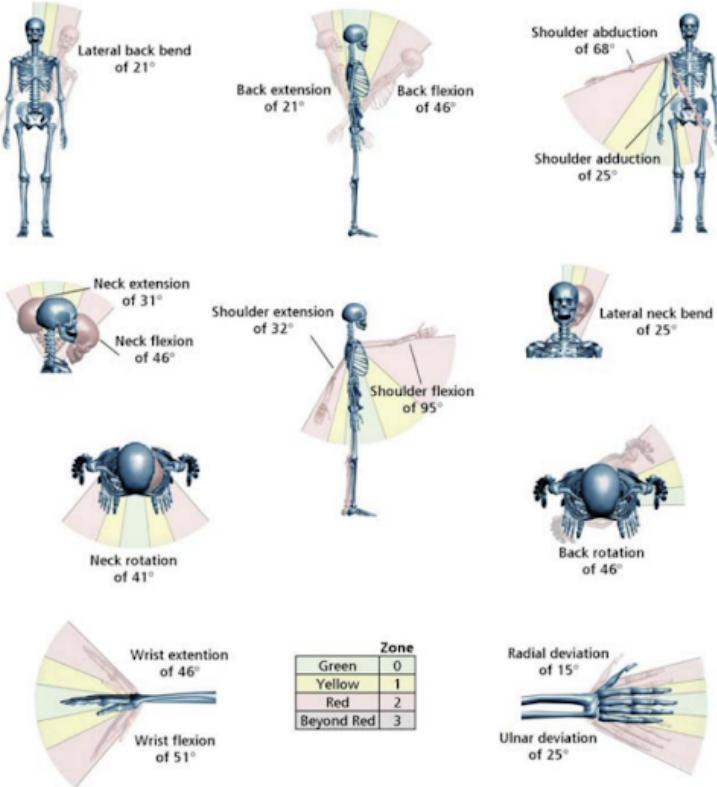


Figure 7. Various ranges of motion for different joints. For exact values of each Zone, see Table A3 in the Appendix on page 49.

Figure B1 - Ergonomics 2.1 Requirement



Figures B2, B3 - Approximate dimensions of bathroom stall at DANI (1 tile = 1 ft), 3.4 Requirement